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COSMIC SPLENDOR

An Empiric Approach to Religion Through Modern Culture

By

James Houston Shrader

Waterville, Vermont
1970

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in loving memory to my wife

Anne Hosley Shrader

Miller Studio

Biographical Note

The author was born in Washington, D. C., September 30, 1885, the only son of Dr. Huston Downing Shrader, a physician, and Mary Susanna Amos Shrader. Although he had no financial resources and even had to help support his widowed mother, he made his way through George Washington University and then Johns Hopkins University, graduating with a Ph.D. in chemistry in 1913. In 1911 he had married Annie Allen Hosley, only daughter of Rev. and Mrs. Henry B. Hosley, and they eventually had three daughters.

Some of his former positions include the following: Chemical Technologist, U. S. Department of Agriculture; Director, Bureau of Chemistry and Food, Baltimore Health Department; Instructor in Biochemistry, Johns Hopkins School of Hygiene and Public Health; and Professor of Chemistry, Eastern Nazarene College. He was for many years editor of the *Journal of Milk and Food Technology* and *Religious Inquiry*, and he is the author of *Food Control: Its Public Health Aspects* and numerous short articles.

FOREWORD

by

Ordway Tead

Author of "Character Building in
Higher Education," etc.

The tension between the scientific and religious outlooks upon life is not a novel theme. But the effort of a ranking physical scientist to confront this tension with an earnest religious concern is less frequently in evidence. In this volume one finds a scholarly search—intellectually and emotionally informed and mature—for common ground between these two areas of human experience to the end that the meaning, purpose, and vision of human life are illuminated.

Professor Shrader has spent his professional life as a teacher of, and researcher in, chemistry and chemical technology. And as a truly religious person, he has been forced by his own honesty of mind to examine the evidence for a synthesis which enables the scientist and the individual of religious discernment to use their total worlds in approximately harmonious and integrated ways.

His life-long academic and industrial encounters with puzzled students of science, with scientific faculty colleagues, and with those disillusioned or disturbed in their religious faith, have supplied the basic prompting for the writing of this book. It does not purport to be in any technical sense addressed to professional philosophers. But it nevertheless achieves a penetrating not to say brilliant synthesis which should be informing, appealing, and comforting to a widening, thoughtful audience.

Here is a helpful setting forth for all who are conscious of "the two cultures and the scientific revolution"—to quote C. P. Snow's recent title—of a fresh orientation of historically divergent life outlooks.

I commend this original statement to the scientifically puzzled, the religiously bewildered, the philosophically exasperated, and the existentially bankrupt. The "conflict" between science and religion classically set forth

Bipolar Holism

years ago by Andrew White has now eroded toward a sense of the complementary and compatible status of these two great areas of human preoccupation.

The intelligent and informed person, as this author makes abundantly clear, can with a good conscience be at once scientifically minded and alive and purposeful in a rationally meaningful way under the aegis of the holy.

To that large group which Professor Shrader has in view as his primary audience, this should prove a revealing and heartening message, at once devout and joyful. Indeed, some teachers of philosophy of the positivist persuasion might well have their equanimity disturbed if they were to peruse this book to its end.

One is glad to invite the reader to an openminded examination of the author's evidence and of his conclusions.

For we may well have here an *apologia pro vita* calculated to win others to a vital faith, justifiable courage, and a dedicated commitment.

anti positivism

PREFACE

Shrader

This book is the outgrowth of a series of essays written at the request of former science students and young colleagues. Following many discussions, I discovered that they were all troubled with the same kind of intellectual unrest that had, for years, concerned me.

I was born into and raised in a Protestant, fundamentalist, evangelical-motivated family. In such an environment, I learned that family prayers every morning, grace at every meal, church attendance on Sunday morning and evening and twice during the week, and a whole series of forbidden behaviorisms as "wrong," were all part of the route to salvation. Any effort to resolve the inconsistencies within the system, the phenomenal contradictions outside the system, and my growing dissatisfaction with the arbitrary pronouncements of the religious, had met with shocked and summary dismissal of my queries.

Gradually, one by one, various biblical and pulpit assertions forced a reinterpretation of some of what had been unquestionably accepted. This growing independence of thought became accentuated by the probing questions raised by students. Disinclined to brush these aside, I began to "take the wraps off" of my thinking. I ventured into a fresh, new world, unencumbered with out-worn thought-forms expressed by encapsulated minds. This entailed a complete overhauling of the religious doctrinal structure as inherited. The process was painful but rewarding in that I became freed from a mass of discredited, irrelevant "revealed" doctrine.

The series of essays originally appeared in my periodical, *Religious Inquiry: Exploratory Studies in Empirical Approaches to Religion.* This journal had been made possible by the generous assistance of friends who gave time, office assistance, and financial aid in addition to encouraging and stimulating interest.

One of my earliest insights came from Henry Drummond's *Natural Law in the Spiritual World.* Then, the writings of Professor F. S. C. Northrop and of Professor Henry Margenau, both of Yale University, and of Professor John Wild of Harvard University, gave me increasing insight and inspiration in this undertaking. Professor Pitirim A. Sorokin's great work at the Harvard Research Center for Creative Altruism showed me how to marshal empiric data for breaking into the supra-conscious realm of moral power. Through the work of Frances Wilson Schwartz, I saw the relation between art and aesthetics in advancing moral and ethical sensitivity and leading to new spiritual insight into cosmic meaning. The quest was advanced by my reading Toynbee, Ulich, J. B. Phillips, Ashley Montagu, and Trueblood.

The immediate stimulation to write this book came from Dr. Ordway Tead, then a vice-president of Harper & Brothers, publishers, and from Harold H. Schilling, of Pennsylvania State University. Helpful suggestions and reviews of parts of chapters have come from the late Swami Akhilananda, Professor Walter H. Clark, former Dean Edmund W. Sinnott, Professors Henry Margenau, F. S. C. Northrop, Nels Ferre, Abram H. Maslow, Wallace Dixon, Alvin H. Kauffman, and John S. Rigden, and Dr. Hubert S. Mickel. I am under obligation to many scholars but must rest content with mentioning only a few, among whom are (the late) Rev. Harold Paul Sloan, the Rev. Dr. Arthur W. Hewitt, and (the late) Professor Edwin P. Booth.

Although owing much to the constructive criticism of the above scholarly friends, I assume full responsibility for all the interpretations, selection of data, and handling of the subject matter. Dr. Alvin H. Kauffman and Mr. Robert Harris rendered great help in drafting the charts.

My thanks go to Mrs. Mary Belle Jones for her skillful typing of the manuscript, and to Mr. Kenneth Sullivan for adjusting his full schedule to the printing of this work, besides giving practical and helpful advice during the process. My daughter, Mrs. Wilbur H. Mullen, gave me many useful suggestions. Special appreciation is due Dr. Floyd John, who, with the help of Mrs. Mullen, undertook the proof-reading and made all final arrangements for publication.

Waterville
Vermont

James Houston Shrader

April 1970

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PROLOGUE

Shrader

The discovery of the moral character of the universe by Zoroaster, Confucius, Lao-Tse, the Hindu sages, Gautama, Moses and the Hebrew prophets, Socrates, Jesus, and Mohammed, was expressed in beliefs and practices that eventuated in the respective religions of the Zoroastrians (now the Parsees), the (earlier) Chinese, the several Hindu forms, the Buddhists, the Hebrews, the humanists, the Christians, and Islam. All these became formulated in thought-forms that expressed the mores of these ancient cultures all in a setting of a pre-Copernican cosmology. Modern man wants to preserve the values already discovered but he thinks in new patterns of expression that have developed in the progress of civilization. In those far-off days of discovery and early formulation, man's thought was authoritarian in character: the persons in authority—religious or civil—ordered people to think and do as they were told in accordance with ancient practices but nowadays every man is prone to think for himself. The trend is characterized by the spirit of inquiry. The enlargement of man's cosmic vision is seen in his emancipation from a geocentric, on to a heliocentric, then to a galactocentric, and nowadays to a cosmocentric view of the universe. Such new vistas require a new interpretation to make the old ideas currently intelligible.

This changing outlook examines traditional ideas in the spirit of scientific inquiry. The spectacular success of the application of science to the problems that immediately affect man, in contradistinction to the otherworldly emphasis that has dominated religious perspectives, has led to increasing reliance on science and a decreasing attention to religion. To the man-in-the-street, the bickering among religions bespeaks the latter's confusion whereas the onward sweep of unified science attests its dependability as a trustworthy discipline. Man's confidence in science has grown; in religion it has declined.

Religious systems have depended predominantly on what certain well accredited, but often merely self-accredited, men say that Deity has revealed to them. On the other hand, science flourishes only in the area of publicly verifiable experience. Whereas traditional religious doctrines have produced a great variety of beliefs, dogmas, and institutions, often contradictory and in-

Experiential
Empirical

consistent among themselves, science has world-wide recognition as one single and universally valid discipline.

Both science and art start from the same facts of everyday experience, but each deals with these facts differently. They both are based on the belief that there is an inner order, and on conceptions of the possibility of apprehending truth, validity, and meaningfulness. They seek hidden likeness.[1] They depend on curiosity, imagination, creativity, cooperation, trust, freedom, honesty—all emerging from the primal urges of man to reason, symbolize, conceptualize, generalize, systematize, and create. They assume the reality, intelligibility, and orderliness of nature. Einstein wrote that ethical maxims are formed and tested not very differently from the axioms of science, for truth is whatever stands the test of experience.

The progress of science is the discovery of new order which gives unity to that which had long seemed unlike. Both science and art are products of the creative imagination. For example, from the sensory phenomena of the natural sciences, man expresses their relationship in pure mathematics, which is only a step from the arts—since mathematics is described as conceptual music and music as sensuous mathematics. Science is the only discipline which has succeeded in constructing a universal operational scheme. It is the first instance of a universal point of view by reason of its appeal to universal experience. It is characterized as unique in that it "can survive the withering of its fictions." It continuously seeks to find its errors. It does not shrink from this shattering but thrives upon it—and nobody thinks less of it.

Religion must offer something on which man can rely, something that appeals to man's mind as reasonable, dependable, demonstrable, effective. It satisfies the need of modern man only as it harmonizes with the best science judgments of the day. The era of authoritarian pronouncements is past.

In view of this dependability of science as a trustworthy discipline rising as knowledge from public experience, it has seemed reasonable to suppose that if religious beliefs were developed by a similar procedure, we ought to come up with a religious outlook that is more general than what now prevails. It would not be just a declaration of subjective ideas authoritatively pronounced. By starting as science does, down where everybody lives and where the underlying facts are public property, I felt that this practice would give "superior knowledge"—"all that is coherently believed to be right and excellent by men within their culture."[2]

So an analysis was made of the phenomena manifested in physical science, biology, psychology, sociology, ethnology, historiography, aesthetics, mysticism, and religion. All these disciplines furnished phenomena which

The whole precedes the parts.

were components of a religious outlook.* By starting with these facts of daily public experience and following up the clues of religious character, I postulated an underlying Reality that tied these experiences into a single system, one that was harmonious throughout. This coherent experience ranged across the spectrum of disciplines from the cold, objective area of physical science to the highly subjective, warm area of religion.

All these phenomena expressed some form of energy—a cosmic power of creating new events. Here was a reality that possessed the characteristics of all (for the greater includes the lesser). I called it *Cosmic Person-like Power* because it possessed the power of creation as well as the person-like, caring aspects expressed by man. Such cosmic consciousness reveals the universe to possess qualities of warmth in response to human needs. (for instance

This idea of Reality is conceived as no person in the anthropomorphic sense. Perforce, it must be expressed in terms of human nature in order to be intelligible to man, but its full being transcends man's ability to apprehend all of its depths and outreaches. Relative to man, it seems to be infinite because man has not been able to encompass it in comprehension. It embraces the idea of a good and benign Mazda of the Zoroastrians, the cosmic spirit reality of Brahmin-Atman of the Hindus, the benign, kindly Buddha, the loving and holy splendor of Jehovah, the mercy and majesty of Allah, and the loving Father of Jesus. None of these ideas are violated but all are fulfilled.

What degree of probability does such an hypothesis hold? Is it pure fantasy or is there a degree of substantiation for its validation? I tested this by examining the results of its application to man's problems of living. If our procedure has indeed resulted in the discovery of such a power, we ought to expect that this would have a dependable, enlightening, and fruitful basis for organizing our lives. As a matter of fact, man universally attests today the awareness of direct divine encountering in the assuagement of soul tension, the abolition of feelings of guilt, an empowerment for the transformation of behavior into higher forms of moral being, the influx of spiritual vitality when needed, the infusion of extravertive power and transcendent perspective in the invention of the arts of civilization (all arising from religious beginnings), a dynamic for self-realization, the most effective influence for establishing the brotherhood of man and social justice, the primacy of law over force, and the generation of motivation for morality and liberty. Communities that practice this transcendent ideology fare better in the enduring values, possess more stable governments, and enhance the progress of society into more abundant

*Religion is defined on page 6.

living by giving meaning to the values of truth, beauty, and goodness.

So the universe is found to be friendly.

As Alfred North Whitehead expressed this matter:

> Religion will not regain its old power until it can face change in the same spirit as does science. Its principles may be eternal, but the expression of these principles requires continual development.[3]

In the following pages, supporting data are given for these presentations.

NOTES

1. J. Bronowski, *Science and Human Values* (New York: Julian Messner, 1956), *passim.*
2. Michael Polanyi, *Personal Knowledge* (Chicago: University of Chicago Press, 1958), pp. 282, 375.
3. Alfred North Whitehead, *Science and the Modern World* (New York: Mentor Books, 1949), p. 188.

CHAPTER I. OPERATIONAL PROCEDURE

METHODOLOGY OF SCIENCE

THE method of science is nothing more than an elaboration of procedures of common sense.[1] It is commonly understood to deal with facts—but so does an encyclopedia. The additional element that is added to this factual component is a theoretical one that expresses the *relation* of these facts to other facts of common knowledge. Such a combination facilitates understanding. An hypothesis is an enlightened guess as to the meaning of the phenomena. An hypothesis is elevated to the status of a theory when experience has brought converging lines of supporting evidence. In the religious sphere, an hypothesis is called a "doctrine" or "belief."

The important feature of science is its public character. Results observed as facts may be observed by another investigator. The development of an hypothesis is a speculation by an individual as to a broad relationship that he thinks may exist between the given fact(s) and other facts. The investigator seeks a pattern, "hidden likenesses,"[2] bringing unity into the welter of his experiences.

In order to ascertain whether the resultant hypotheses are more valid than empty speculation and wishful thinking, they are subjected to vigorous existential validation. If any phenomena are found to contradict or invalidate the hypothesis, the latter would have to be modified or even discarded. Nobody discredits science for its discovery of its limitations and errors. This attests the honesty and the self-regulation of the scientific enterprise.

The processes of perception, conceptualization (designing of hypotheses), and validation (confirmation) depend on the acceptance of certain assumptions.[3] In science these are (regarding nature) order, describability, predictability, constancy; in religion: those of science plus a realm of ultimacy, mystery and the holy.

The spectacular successes of the scientific procedure in the modern world have made such a deep impression on man's mind that this sort of thinking dominates his outlook, entailing a decrease in the authenticity of other long-stressed avenues of knowledge. Science as such has no place for the warm-hearted and intuitional outlook which is the basis of art and religious feeling. But when these two practises are combined, we have a full meaning that has warmth and vitality. In this essay, I emphasize both, expressing them in the methodology of science, giving a balanced perspective.

EPISTEMOLOGY

The procedure followed in these studies follows mainly the system of Margenau.[4] He calls the observable phenomena "percepts" and the hypotheses that are built on them "constructs." Cognition moves from percepts to constructs via guiding relations which he calls "rules of correspondence," specifying that the constructs must satisfy the metaphysical requirements of logical fertility, extensibility, multiple connections, causality, simplicity, elegance, and several others. In other words, the constructs must "take off," so to speak, along the runway of thought-pathways prescribed by long and successful use during the history of science.

Percepts

The word "percept" means the sensory apprehension of phenomena manifested as data from experiential facts including publicly observable psychic phenomena such as love, joy, suffering, guilt. They describe the phenomena of experiences in living. These embrace shared experience by many persons. They are irrational as being merely events encountered in life, and involving no speculation nor theory nor doctrine. They are the bare facts of daily experience shared by many persons.

There is no sharp line of demarcation between some facts as given and some as inferred. The accumulation of a large amount of experiential knowledge may endow a mere hypothesis with such a high degree of probability that it is considered to be a fact. These are called "verifacts," examples of which are electrons and atoms, none of which have ever been sensually observed objectively. Even subjective states may fall into this category, for

hunch, intuition
prescience, intimation

anybody knows without any doubt when a person or a dog or a horse is happy or is suffering.

Constructs

Contrasted with the given facts of everyday experience are the thoughts, ideas, and mental images rising as rational entities from encountering such factual events. Many such percepts are fuzzy and unclear so we ponder to ascertain what they mean. For example, we see a blotch of color moving in a distant field. It certainly is not a tree but may be a horse, a cow, or possibly a deer. Closer approach reveals more percepts of a bushy tail, a mane, but no horns or udder. We conclude that it is a horse. Life itself is a verifact: we do not sense it or observe it but we recognize its effects.

After Darwin had pondered long as to why living organisms seemed to develop in an orderly sequence, the idea suddenly dawned that this was the result of the effects of a process in nature called natural selection whereby the most fit survived as compared with the less qualified. Actually, this idea was only a "fertile guess." It was an inductively reached or devised hypothesis described as an inductive leap across the gap between the observed given phenomenal facts and a rational explanation. This leap is known as intuition. It is the basis of poetry and art; it is akin to revelation in the field of religion. These assumptions are called hypotheses or axioms or postulates in science; ideals or norms in ethics; faith in religion; in all, constructs.[5] Sorokin places such matters as phenomena in the "supra-conscious" realm.[6]

Each construct serves as a ground from which other more abstract constructs can be devised, each being the base for a higher, more general conceptualization. The edifice of construct on construct can be likened to successive stories of a house or the successive elevations of a pyramid, rising from the ground-floor of percepts, giving a first low approximation of meaning. The third floor (or elevation) gives a broader and deeper meaning to the second floor constructs; the fourth floor of constructs, rising over the third floor, with broader and deeper meaning yet. Each story has fewer constructs but each has deeper and broader meaning. We end up with a single over-all construct that gives meaning to and embraces all that lie below it.

One of the terms in a construct must lie in nature either directly and immediately or must connect directly via another construct that does so connect. Thereby, the increasingly abstract [as we move farther away from nature] constructs are seen as deriving from the realm of immediate experience. As we move farther and farther away from the experiential perceptual realm [the P-plane] the constructs become increasingly abstract, such as those of 'field,' 'probabilities,' 'psi-function,' 'pi'—and also such constructs as life and deity.

Validation

In order to give more dependability to these hypotheses and to give them substance above that of mere fancy and fantastic speculation, theorems are devised as predictive of events that may be expected to follow their application to life. For example, if such and such a construct be true, we can expect to find that by applying it the predicted result would ensue. Einstein's relativity theory was established when predicted corrections to the orbit of the planet Mercury and the bend in the path of a light ray near the limb of the sun were actually observed.

A positive result whereby the prediction comes 'true' does not necessarily prove the correctness of the construct. Some other, unthought-of construct might conceivably give the same result. Also, sometimes experiments give accidental confirmation through some hidden error, or a lucky coincidence. However, the greater the number of check tests, the greater the likelihood that the truth will be reached.

Another rule of validity asserts that a construct must be fertile. If it is truly more abstract than the construct from which it rose, it must be more comprehensive in its scope and therefore embrace a wider field than did the underlying construct. See FIGURE I below.

Validity involves the coherence of an idea with other ideas and consequences which follow independently of the original idea.[7] For example, the planets Neptune and Pluto were never imagined to exist when Newton discovered his gravitation formulae, nor did Einstein anticipate the formula $E=mc^2$ when he discovered his relativity theory. The truth of verity in true discovery is supported by its fruitfulness in leading to new knowledge.[8]

Truth is validated by two cognitive attitudes: first, that of controlling, and second, that of receiving knowledge.[9] Controlling knowledge is the repeatable experiment. It is precise, and the more impressive because of its success in the methods pursued by science. The other attitude—that of receiving knowledge—is validated by the creative character of the two natures of the knowing and the known—the subject-object combination. The test is not precise nor repeatable. The life process itself is the test. This union of the controlling and receiving elements is the basis of the work of physicians, psychotherapists, educators, social reformers, political leaders, and clergy-

insight by participating interacting

men. Tillich calls this "knowledge by participation" in the individual life.

Operationally, the procedure followed is illustrated by FIGURE I. The heavy horizontal line represents the plane of nature. Below it lie all the objects of sense perception: percepts. Experience moves from these sensory percepts to rational reflection that seeks to relate them to wholes or interconnected patterns of knowledge. The passage from the P-plane to the C-field constitutes a leap from fact to hypothesis. The latter remains as speculation unless and until validated. The observer plans experiments (experiences) as if the hypothesis were true. Validation involves the deduction of dependent ideas from antecedents successively until he arrives back at the P-plane of sensory experience. He starts with experience, speculates inductively to a construct, and then returns to experience.

The following FIGURE I illustrates this procedure in conceptualizing the structure of the atom. The latter is not observable but is only conjectural.

I now turn to abstract from the various areas of our everyday experience the phenomena that seem to have some coherence with the phenomena encountered in the conventionally recognized field of religion in general. These explorations will constitute the content of PART I, Chapters II to X inclusive.

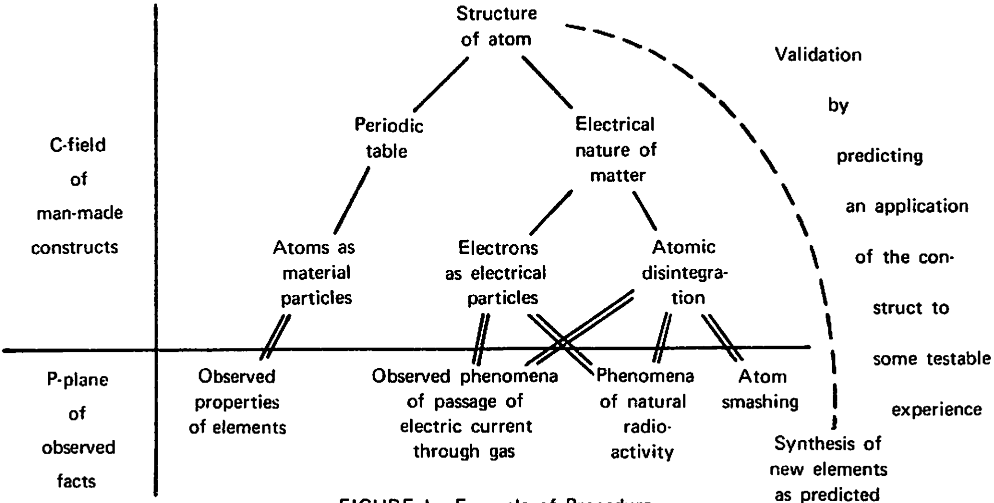
Structure of atom
Validation by predicting an application of the construct to some testable experience
Periodic table
Electrical nature of matter
C-field of man-made constructs
Atoms as material particles
Electrons as electrical particles
Atomic disintegration
P-plane of observed facts
Observed properties of elements
Observed phenomena of passage of electric current through gas
Phenomena of natural radio-activity
Atom smashing
Synthesis of new elements as predicted

FIGURE I. Example of Procedure

Glossary of Terms

Hypothesis – a working guess, postulation, explanatory speculation.
Theory – a more or less confirmed hypothesis.
Theorem – implication deduced from an hypothesis into a testable prediction.
Law – a highly substantiated hypothesis in science.
Belief – a pattern of speculation that serves as a basis for behavior.
Doctrine – a widely held belief especially in religion.
Dogma – a widely held doctrine authoritatively proclaimed.
Conviction – an emotionally held belief.
Faith – same as foregoing but broader in scope so as to embrace a patterned or formulated system of beliefs as dependable guides to conduct.
Energy – action forms.
Culture – expressive action forms.
Intuition – an inductive, assumptive explanatory hunch or belief.
Knowledge – beliefs based on sound reasons that are expressible in statements.[10]
Religion – "a system of beliefs about the nature of the force(s) ultimately shaping man's destiny, and the practices associated therewith, shared by the members of a group."[11]

(I protest against the pejoration of the word "religion" by making it synonymous with "ultimate concern." The latter may include such devoted interests as Naziism, Communism, Nationalism, Humanism, Scientism, golf, sports, etc. None of these carry a connotation of feeling for the divine, for the sacred, for worship. These secular devotions should be called by what they are, such as surrogate-religions, pseudo-religions, or quasi-religions. Religion is ultimate concern, but not all ultimate concern is religion.)

"The dogmas of religion are the attempts to formulate in precise terms the truths disclosed in the religious experience of mankind. In exactly the same way the dogmas of physical science are the attempts to formulate in precise terms the truths disclosed in the sense perception of mankind."[12]

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11. Lanski, quoted in J. Paul Williams: "Commenis on Articles by Professors Weiss and Winter," *Jrn. of the Scientific Study of Religion,* II (1963), 235.
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CHAPTER II. OBSERVED PHENOMENA IN PHYSICAL SCIENCE

NATURAL LAW

FROM remotest antiquity, man has recognized that some aspects of nature recur with more or less regularity. He learned to adapt himself to these repetitions.[1] Their regularity led him to anticipate their recurrence, hence their predictibility.

The early Greeks recognized a moral order which must have been known by the citizenry since their plays deal with it. It was enshrined in Stoic philosophy which passed it on to Roman Jurisprudence, and thence into the mentality of the Middle Ages. The idea of a Supreme law-giver of ancient Hebrewism and Judeo-Christianity, supplemented by the long dominance of scholastic logic, trained the intellect of Western Europe to recognize a sense of order in the Universe. This revolved around a faith in the rationality of God—the unquestioned faith of centuries, an unconscious derivative from mediaeval theology.

In addition to this instinctive faith, religions (especially that of the Benedictine Order) early directed their scholarly energy to the development of the practical arts. Observation came to be extended increasingly to (or toward) the facts of everyday experience. It passed on from passive acquiescence to the environmental forces to that of understanding, and then controlling, them. Some of the great technological advances were made during the late Middle Ages, such as the invention of the Horse collar, the telescope, spectacles, and the mariner's compass.

In the sixteenth and seventeenth centuries, the discovery of ancient Greek manuscripts triggered a flowering of intellectual interest in nature. Out of man's long training and theology, he found himself *in* a dependable system of things as well as *of* such a system. He recognized uniformity (as

Gestalt

substance and process) throughout the whole observable universe. Such uniformity is expressed as "law," correlating observation with experience. Such descriptions do not control or coerce events in any aspect of causality, but merely describe what man's previous experience indicates what nature will do in the immediate circumstances. Patterns give insight. At best, these laws are only approximations within many degrees of probability as to their basic truth. This is appraised by the extent to which experience has verified their cosmic (experiential) dependability. (See Chapter I.)

Increasingly, these formulations have gone from the readily seen, objective phenomena of the everyday world to greater and greater abstractions. For example, the apparently obvious Ptolemaic cosmology (i.e. the sun rises, the earth is stationary, etc.) gave way to Copernican ideas of the motion of the earth around the sun. Then Newton brought out the idea of the laws of gravitation as effects of "force applied at a distance." Finally the theories of relativity and the new physics of quantum mechanics have reduced the phenomena of nature to mathematical abstractions—for which no physical model has been conceived.

These laws of nature (or science) constitute grand conceptual schemes which fit together into a coherent pattern.[2] The successes of science in advancing knowledge of nature led to the belief that science was not only a dependable discipline but that it was "exact" in its formulations and predictions of future events in its field. This belief is not strictly correct. Although science rises on a base of observed facts, their relation to one another is described in hypotheses which are pure speculations (See Chapter I). Another hypothesis might "explain" as well as the one thought to be more plausible. So the best that can be said for an hypothesis is that its status is one of *probable*[3] dependability.

> *Scholium 1:* Natural phenomena that were observed to be repetitive were expected to recur, and this regularity became expressed as law.

MATHEMATICS

The pre-Socratic Greeks were the first to see a thorough-going unity of being, accessible only to pure thought. Pythagoras (ca 6th century B.C.) saw nature pervaded by the harmony of number and subject to the lawfulness of geometry.[4] Kepler's model of the solar system, published in 1596, was based on the five "perfect" solids of Euclidean geometry.[5] Thompson sees "the Platonic bodies"—cube, tetrahedron, octahedron, icosahedron, dodecahedron—in low-order living organisms.[6] Galileo and Kepler saw mathematics as symbolizing the mystery of cosmology. Through Galileo, Kepler, Newton, and Einstein, mathematics bridges between the intelligible and the sensory; natural science is joined with logic through mathematics. Mathematics has been called "God's style."

Starting with the conception of integers representing discrete objects, mathematics has proceeded with increasing generality and rigor, stimulated by the rational beauty arising from the complex relations embodied in them—as in the pleasing visible relationships in painting and in sound relationships heard through music.

This rationality which governs nature had been anticipated (as intuited) before the discovery of mathematical harmonies empirically in natural phenomena. Pythagorean thought, at first taken naively for granted, was restored in the blend of geometry and physics by relativity. Physics and mathematics coincide when mechanics is transposed into a 4-dimensional, non-Euclidean geometry. Euclidean geometry was a special aspect of the metric relations of rigid bodies, ignoring their masses and the forces acting on them. Mathematics connects sensory perception, psychological intuition, and philosophy.

As Northrop expresses it, man's mind functions isomorphically with the structure and processes of nature.[7] The validation of any scientifically postulated theory of nature is as much a verification of the working of the mind as the converse approach is the validation of a theory. Man's mind and nature seem to work in correspondence. Einstein discovered rationality in nature although he was unaided by any observation.[8] (This validates intuition as a dependable base of knowledge.)

> *Scholium 2:* Mathematics expresses in a system of symbols various relationships which have been intuited to exist among numbers and dimensions of abstract spatial configurations from which previously unobserved phenomena can be dependably predicted.

CHANGES IN PHENOMENA

Man observed that the fundamental units of the universe are matter and motion. Matter per se is inert. When it is in motion, its effects are perceived by the senses. We call this combination of matter and motion "energy."[9] We have no idea as to what this entity is, but we recognize its effects.

The entity that produces this motion is called "force." This is an abstraction of the mind to describe the muscular sensation of our body muscles to change the motion of a material body. It expresses an abstraction from sense experience to produce the idea of "force" which can be given a measurable, mathematical formulation.

All the phenomena of the universe are comprehended as manifestations of this entity–energy. This concept is asserted to be the most significant and useful of all unifying concepts in the field of physical science.[10] It spans the infinitesimal and the gigantic. Using these ideas, Newton discovered a universe.

Varieties

Energy manifests itself in a number of modes but all convertible into one another. The kinetic form is that which is associated with a body in motion whereby this moving body can impart movement to another body. Potential energy is that which is stored up, so to speak, and can be released under certain circumstances (for example, a stone poised on a hill or a water reservoir). Electrical energy is that produced by the effects of an electric current. Thermal energy is that produced by heat, as in fire. Gravitational energy is that manifested by the "pull" of gravity toward the earth. Chemical energy is that which is released in chemical reactions as in the explosion of mixtures of hydrogen and oxygen. Even psychic energy is recognized by its effect on other psychic entities.

Two of the most important forms of energy are electricity and heat.

Electricity. For thousands of years, man has known lightning, the ability of the torpedo fish to sting its prey, "St. Elmo's Fire" as a faint glow upon the tops of pointed objects, and the property of amber to attract small objects that are placed near it. In fact knowledge of magnets had been accumulating ever since this property was discovered in lodestone found in Asia Minor and known since the 6th century B. C. Knowledge concerning the properties grew into the science of *magnetism,* and out of this developed our knowledge of *electricity.* This knowledge can be summarized as follows.

An amber or glass rod may be rubbed with fur and/or silk with the result that the rod can attract light articles. Many other objects could be so electrified. This phenomenon exhibited two properties of attraction and repulsion respectively designated as "positive" and "negative." These were called "charges" of electricity. These charges could attract (if dissimilar) or repel (if both are either positive or negative) across space with no visible connecting medium. This effect at a distance was attributed to the influence of a "field" that surrounds the charged body. A charge when placed on certain

Field Theory

substances will distribute itself uniformly over its surface or along its length qualifying the latter as a good conductor (such as a wire). The flow of charge along a conductor is called an electric current.

Heat. This phenomenon was long thought of as a fluid that flowed from a hot body to a cooler one. This idea was seriously weakened when heat was experimentally found to arise from frictional motion. For example, a bullet stopped by a target generated heat enough to partly melt it. From the theorizing of Mayer in 1842 and the experimentation of Joule in 1843, the idea has grown that heat is a form of motion of particles that compose the body. This motion is the energy of the system. It cannot be destroyed. It can be produced only by expending an equal amount of energy. It is constant in quantity and can be changed only in its mode or manifestation. This expresses the principle of the conservation of energy: energy cannot be created or destroyed.

> *Scholium 3:* Various physical effects of one body on another, either near or distant, produce behavior which is described as a change in energy content or the power of doing work.

Patterns of Manifestation

The whole universe of physical events is observed to function largely in accordance with mathematical formulation seen in the integration of geometry and physics. An invisible metrical field[11] is observed to permeate nature. It is rhythmic in character with the atoms expressive of modes of energy. Man's mind seems to synchronize conatively with nature's structure and process. Man's mind and nature seem to be isomorphic.

Energy as particulate. Heat, light, and other radiation phenomena were all shown to be modes of electrodynamics, and were thought to flow in a steady stream as water from a hose. However, in the year 1906, Planck showed experimentally that heat energy is radiated in pulses or "jumps," like bullets from a machine gun. These packets of energy were called "quanta." In 1905, Einstein explained that the energy of light radiation appeared as discrete packets which he called "photons." The radiation always appears as whole units, never fractions. So like matter, electricity, heat, light and all forms of radiant energy are corpuscular.

In the period between 1908 and 1905, biology, chemistry, and physics introduced the idea of discrete entities at the base of their phenomena: atoms in chemistry, cells in biology, and genes in living organisms. In physics, heat was interpreted as coming from the motion of atoms and molecules, in electricity the electron was held to be the fundamental negative charge, and radiation was quantized.

Complementarity. When a beam of light is passed through a crystal it exhibits characteristic patterns as if it were a wave whereas when it is studied in its atomic photo effects, it behaves like a stream of discrete particles. Bohr interpreted this anomaly as indicating a distortion from the naturally state caused by the person or the instrument. What seems like contradiction is explained as the supplementary character of information from different sources. It is called "complementarity." Bohr saw this principle as applicable in other fields of knowledge.[12]

This principle of complementarity is seen in the figure of "spaces" asserted by Heim.[13] A space is a relationship characterized by a unique structure differing from all other spaces. For example, a landscape may be two-dimensional as in a painting or three-dimensional as in a model. These dimensions are open to one another only through the "suprapolar" space of Reality. It is illustrated by Coulson's figure of a set of blue-prints that are required for the erection of a building.[14] No single drawing can possibly give an intelligent idea of what the structure is to be like: each drawing shows some particular elevation. All are needed to give perspective to a completed edifice.

Indeterminacy. As seen above, individual particles exhibit a degree of independence from strictly bounding determinism or causality. They do not always behave just as the group does. For example, if a fine beam of electrons is shot at a narrow hole, with the same diameter as that of the beam, the particles will not all go through. There will be observed a scatter of particles around the edges of the hole, decreasing in number as per the distance from the hole. The aggregate of particles follows the driving force but many individuals do so only in a general way but not precisely. The individual particle displays a degree of uncertainty or "indeterminacy."

There is a break in the chain of causation between present and future states. An element of change influences the behavior of a small number of individuals giving to the aggregate only a mathematical *probability* of arriving at the predictive result from the given causation. Thus there is a "potentiality of response." (This phenomenon is masked when large aggregates are involved but is observable in microphysics.)

These laws of probability give a certain degree of flexibility to what otherwise would be mathematical certainty. These same laws of probability apply all the way up to living individuals, constituting the base for insurance calculations that such and such a number of persons will die in a given period but no information as to who the individuals are.

So group action carries an indeterminacy as to the behavioral pattern. Individuals exert a degree of freedom, introducing a situation where behavior is not strictly determined by the imposed force. An opportunity is accorded for novelty to express itself. Microphysics shows that this principle corresponds more to vital phenomena than to macrophysics. "Change" and "choice" enter as determinants instead of mathematical certainty and preciseness.

These phenomena in the realm of microphysics in no wise obviate the behavior of large bodies.[15] These principles reduce to the laws of classical physics in the limit of large bodies. But the laws of probability do show the basis for individual behavior as having its roots in reality.

Thermodynamics. Until the first half of the nineteenth century, man had thought of heat as being a fluid that flowed from a hot body into a cooler one. But when heat was found to be generated by boring, by friction, and by the "braking" of motion, the belief grew that heat was a kind of motion of particles. Two outstanding formulations of laws arose from these new ideas.

The first was known as the conservation of energy. In all heat transfers, no heat was ever lost but simply transferred to another body or radiated away. So the heat content of the universe is constant. Since heat is convertible quantitatively into other forms of energy, it follows that the energy content of the universe is constant.

The "second law of thermodynamics" held that this transfer of energy always entailed a loss of energy to the system. Always there is some heat that is radiated away and so becomes unavailable. The mathematical expression of this heat loss is called "entropy." In the cosmic process, entropy increases. This potentiality for heat to pass from orderly state to a disorderly one (as in radiation) is the driving force of all cosmic reactions and motion. It is illustrated by the tendency of water to flow down hill, by the tendency of heat to be conducted and radiated away, for carbon to burn, and for food to digest. All chemical reactions are driven forward by this "urge"-like tendency to increase entropy as unavailable energy.

Cosmological Aging. Energy is seen as bound into the various forms of structure and function of all entities from particles to human beings and to stars. As we have just seen, this energy becomes unavailable as entropy. It escapes restrictive binding, so to speak, proceeding to a decrease in organization. We observe this phenomenon in "aging."[16] Stellar development is a passage from a given structure to a less ordered one—one that is more "probable." Comets and meteoric swarms disintegrate. Star clusters disperse. Radioactive isotopes can be considered the decay into more probable atomic structure. Glass deteriorates in the development of violet color with aging. We study old suns and talk about aged wine, metal fatigue, and aging rubber. These terms describe the process of deterioration of observed things, and the principle of entropy tells us why they behave this way—organization passing into less organization.

Scholium 4: Nature is a structure of aspects of energy whose behaviour follows intelligible and predictable patterns of change.

COSMOS

Changing Universe

We observe our universe to be undergoing continuous change. Stars are receding as the universe expands. New stars burst into brilliance, sometimes many times brighter than our sun. Five have appeared since the first third of this century. In 1592 Tycho Brahe reported the appearance of a new star that was visible in daylight. Kepler in 1604 described a new star that rivaled the brilliance of the planet Jupiter. Comets and meteoric showers cease to reappear. Great out-bursts of radio waves and cosmic storms of charged electric particles bespeak astral cataclysms. On a longer time scale, new stars are being born, develop, and decline into visual oblivion.

On the earth we observe the silting up of waterways, surface erosion, rise and submergence of land, effects of earthquakes, tornadoes, and volcanos in changing surface conditions. All these contribute to the geological phenomena exhibited in age-old rock strata and geographical configuration still in process of alteration.

These phenomena of continual changes in man's environment, sidereal as well as terrestrial, reveal similarity of the action of forces over the past billion of years as observed in sidereal changes and in geological strata. This is the basis of the Principle of Uniformitarianism—the doctrine that forces in nature over the past millenia are similar to those observed operative today. Forces that are studied in laboratories are like those seen in cosmic operation telescopically and spectroscopically, in analysis of meteorites, in radioactive phenomena, nucleonics, the phenomena of mechanics, and in the relatively new field of radio astronomy. The laws of nature that we live with are operative in galactic systems throughout the observable cosmos.

Scholium 5: The cosmos is undergoing orderly change from simple to increasingly complex patterns of structure and function, and then back to simpler ones.

Cosmic Structure

The sciences of astronomy, chemistry, geology, meteorology, and physics have shown that the "stuff of the universe" (matter) is composed of ninety-two naturally-occurring different kinds of substances, called chemical elements. These same substances constitute all the other celestial bodies, sometimes singly as atoms and sometimes as molecules. Sidereal phenomena are duplicated in laboratories.

All parts are in dynamic equilibrium with the whole. The small parts are held in subordinate revolution around the ones which have a greater gravitational pull. Atoms likewise are built of small charged particles in motion around a powerfully attracting nucleus.

Nature seems to function in its becoming as a succession of organizational stepups from one level of complexity to increasingly intricate patterns. The quantum jumps in chemistry and physics correspond analogously to the mutation jumps in genetic biology. This behavior seems to extend to the interstellar spaces: atoms, rocks, planet, solar system, our galaxy, and then the great metagalaxy.

Sidereal. The heavens on a clear night display seemingly myriads of stars, but actually only about two thousand can be seen at any one time with the naked eye. Telescopically the number of stars observable directly and photographically runs into an estimated one hundred thousand million billion. They are arranged as great aggregations occurring in flattened disks, called galaxies. Each consists of billions of stars, all revolving around a galactic center. The whole galaxy itself is moving. Spiral arms stream outward somewhat after the fashion of a pin wheel firework. Our earth is located in one of these arms of our galaxy, the Milky Way (whose hazy light is caused by the myriads of stars as they are viewed along the flattened disk). Our galaxy is 100,000 light years* in diameter and its thickness is about 1,500 light years. Its rotation requires about 200 million years. Its center is more than 25,000 light years distant. There are millions of such galaxies each consisting of millions of stars, all receding at rates of speed that increase with the distance, revealing thereby an expanding universe. Their paths can be traced back to a common, localized area of about fifteen to twenty-five billion years ago.[17]

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* A light year is the distance travelled by a beam of light moving at the rate of 186,000 miles per second for one year, amounting to about six trillion miles).

Our nearest astral neighbor is twenty-five trillion miles distant. Galaxies have been photographed with light that took sixteen billion centuries to cross 9,500,000,000,000,000,000,000 miles.[18] One of the nearest is 750,000 light years distant, has a diameter of 100,000 light years, and a stellar population of about one-half billion to one-half trillion suns.

The universe contains great quantities of diffused hydrogen that transmutes by thermonuclear transformation into the element helium, the basic element of stellar constitution. By known reactions at temperatures of one hundred million degrees or so, this element transmutes into the other elements.

Most of our information about the sidereal cosmos has been obtained by optical means, first by using telescopes visually and later photographically. Within the past twenty-five years or so, radio waves supplementing light waves have enabled man to probe cosmic depths of over five thousand million light years.[19] The new radio telescopes run to 250 feet in diameter, whereas the largest optical telescope has a lens of only 200 inches. Visible light runs only one octave frequency in the visible range of our eyesight (from violet to red) but the spectrum of extra-territorial radio signals spans 100 octaves of frequency revealing 100 million galaxies within the distance of 500 light years.

Our galaxy contains vast numbers of fast moving electrons and large magnetic fields. Great beams of radiant energy pour out of the depths of inter-stellar space. The terrestrial atmosphere protects the surface of the earth from continuous bombardment by cosmic rays [ultra high energy protons], meteors, ultra-violet light, heat waves, and other radiation that is deleterious to living organisms.

These staggering figures of the macro dimensions of cosmic events are matched in the micro dimension. Every breath that man inhales contains a thousand million, million, million $(10)^{21}$ atoms. Man's stature is about midway between sizes:

$$\frac{\text{star}}{\text{man}} = \frac{\text{man}}{\text{atom}}$$

All of man's experience over the past millenia has been in the intermediate registry where his sensory perceptions were formulated in accordance with "common sense." Within the past fifty years, he has found a vast subatomic world where the phenomena reveal forces never dreamed of before. On the other hand, many experiences in the macrocosm are revealing a cosmic structure engendering wholly new adjustments of man's thinking, as for example, the laws of quantum mechanics and relativity.

> *Scholium 6:* The sidereal system of stellar bodies constitutes an enormous of distant bodies, developing out of hydrogen, exhibiting birth, maturity, and decay, and streaming storms of radiant energy from turbulent centers.

Solar. Our sun is a medium size star with a surface temperature of about 11,000° F. and a much higher inner temperature where hydrogen is transformed into helium with the generation of vast quantities of heat. This is radiated away at the rate of four million tons per second. Great turbulence in the sun's gaseous envelope is revealed in huge solar vortexes, seen as sun spots, and accompanied with magnetic storms whose effects are registered on the earth as auroras, static, and telegraphic and telephonic disturbances. Huge currents of charged particles spiral around the earth's magnetic field and are guided toward the polar regions. A sharply defined area, the magnetopause, separates the inter-planetary medium from the dominant earth's dominant geomagnetic field.[21]

With a diameter of over eight hundred thousand miles and a size about thirteen hundred times that of the earth, it controls the revolution around it of the nine major planets and the many lesser objects like asteroids, comets, and meteors. These bodies are known to consist of the same kind of "stuff" that constitutes the sun but are in various stages of aggregation and state-of-being. With only minor exceptions, the planets and the sun rotate on their axes after a similar pattern but with different periods.

Cosmic organization as expressed in mathematical relationships is strikingly revealed in the structure of the solar system. Early in the seventeenth century, Kepler discovered three laws which describe the motion of the planets around the sun. (It was not until Newton enunciated the laws of gravitation that the significance of Kepler's laws was understood.)

Another mathematical relationship, developed empirically like Kepler's laws, was brought into prominent notice by Bode in 1772 and known as "Bode's law" (although discovered earlier by Titius of Wittenberg).[22] Its meaning is unknown but it expresses in the following sequence the relative distance of the planets from the sun. But this empirical correlation breaks down for the planets beyond Uranus. All this may be a mere coincidence, but it indicates some kind of correlation after the fashion of Kepler's laws as seen in the light of the later discovery of Newton.

On the basis of a synthesis and development out of the work of Galileo and Kepler, Sir Isaac Newton formulated the law of universal gravitation, extending terrestrial mechanics to planetary motion, and operative throughout the universe. This was published in 1687. It showed that forces encountered in everyday living are operative throughout the universe, and that the empirical study of earthly phenomena led to abstract mathematical discovery. In the earlier part of this chapter, we saw the reverse: that mathematical abstraction led to the discovery of earthly phenomena. Intuition as well as the verity of mathematical operations and formulations have been spectacularly substantiated.

> *Scholium 7:* The solar system embracing the earth exhibits the same kind of development that is observed sidereally, holding the assemblage of planets, comets, and meteors by the power of solar gravitation, and radiating energy as electromagnetic effects.

Terrestrial. Geology shows that the earth has reached its present form through slow changes over long periods of time. Several methods have been discovered for determining the magnitude of the time involved, as follows:

- counting the number of tree rings (useful to about 1,000 B.C.)
- counting the annual layers of sediment in clays and sand, called *varves* (useful for timing back 13,000 years)
- estimating by astronomical and geological data the time of the Ice Age (dating back about a million years)
- determination of the decay products from radioactive isotopes (useful for dating, according to the method applicable therefor, from 1,000 to 3,000 million years).[23]

The composition and form of rocks indicate that they originally were molten. Volcanic eruptions currently now are discharging molten rock. Other phenomena all indicate that the core of the earth still probably is molten.

In order to facilitate developments in the earth's past eras, this long time span has been divided into successive epochs, as follows:

*Geologic Time Scale**

Era	*Outstanding Physical Events*	*Life Development*
CENOZOIC	Postglacial changes, ice age, formation of mountain systems, extensive volcanic action in western United States.	Dominance of man, appearance of mammals and specialization of modern animals.
MESOZOIC	Early forming of Rocky Mountains, extensic volcanic action in New England.	First flowering plants, deciduous trees abundant, dominance of dinosaurs, marsupial and placental mammals, insects, birds, primitive mammals, climax of reptiles.
PALEOZOIC	Formation of Appalachian mountains, extensive glaciation, clay-forming swamps Acadian and Taconic mountains, Green mountain disturbance.	Expansion of ammonites, and reptiles, last of trilobites, luxurious vegetation forming coal, first insect fossils, few corals, dominance of fishes, first ammonites and land vertebrates, invertebrate dominance, first amphibians, dominance of invertebrates.
PROTEROZOIC	Extensive lava flows, oldest evidence of glaciation.	Scanty record of plants and animals, algae fairly common, few fossils, worm burrows, graphite, calcareous deposits of algae.
ARCHEOZOIC	History obscured.	No fossils, indirect evidence of living things.

These geological periods, called "eras," are only man-made and have only approximate value, although scholars are agreed that they are substantially correct.

Many sedimentary rocks (made by the solidifying of deposits of sediment by cementation, crystalization, and pressure) contain petrified remains of previously living organisms which were entrapped in the settling sludge. They are recognized by their morphological characteristics (as the embedding rock is chipped away), by impressions on other previously plastic surfaces in the form of trails, burrows, tracks, and imprints. Some early forms are found intact in amber (hardened resin from coniferous vegetation) or frozen in gravel beds in Siberia. Usually the soft parts of plants and animals have not been preserved but only their harder skeletal parts. Compounds of silicon and calcium slowly soak into and replace the materials of the original structure. Much vegetation has left its imprint on coke, thereby dating these beds.

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* See Table 1, Chapter III, for chronology of evolutionary development.

Geological nature is structured on the chemistry of the element silicon, biological, on that of carbon. The unique properties of these elements seem to be their characteristic of forming complex combinations with many of their similar as well as with other elements. Such complexity makes reactions possible over a wide range of conditions, facilitating the maintenance of dynamic equilibrium with the environment. Matter and energy have the common property of organization. This is indicated in the unique properties of carbon, hydrogen, oxygen, nitrogen, carbon dioxide, and water to engage in reactions and to form compounds that possess durability and diversity.[24]

> *Scholium 8:* Earth consisting of the same kinds of stuff that constitutes the sidereal population is slowly undergoing development revealed by successive strata of rock entrapping increasingly complex fossilized forms of (formerly) living organisms.

NATURE OF MATTER

Structure

Around the turn of the century, three discoveries together revolutionized current ideas as to the constitution of matter, namely: Roentgen's discovery of X-rays, Becquerel-Curie's discovery of radioactivity, and Rutherford's researches on the passage of electricity through gases. Previously, the atom had been thought to be solid after the fashion of a small bird-shot. But the above discoveries led to the idea that the atom is constituted of many minute particles, all more or less electrical in nature, some charged and some electrically neutral. Many decay into other particles in less than a billionth of a second. Margenau calls such particles *onta* (plural in Greek for *on* meaning being).[25]

In general the atom behaves as if constituted of a highly complex central body positively charged, called the nucleus. It constitutes most of the mass of the atom, but it is only about 1/10,000th of the diameter of the atom. An atom itself is about 10^{-8} cm. in diameter. In the year 1930, the nuclei themselves were found to be assemblages of positively charged "protons" and neutral *neutrons.* Another particle called the *pi-meson,* discovered in the 1940's, holds the nucleus together by alternately exchanging a pi-meson between the proton and the neutron.

Revolving around the nucleus is an ill-defined cloud of negative charges equaling in number the positive charges in the nucleus; these are called *electrons.* Each electron is about 1/1,800th the size of the nucleus. These give to the atoms its characteristic chemical properties whereas the nucleus imparts the physical properties. As an indicator of the physical magnitudes involved, using the scheme of Margenau, when the nucleus is the size of an ordinary house, the electron would be the size of a toy marble, and the distance between the two would be about one mile. So the atom is mostly space, yet withal "transient reservoirs of concentrated power. . .corpuscular energy. . .most primitive form of universal stuff."[26]

The properties of the atom can be changed by introducing into, or abstracting from the atom various of these onta. Their spontaneous emission constitutes the phenomena of radioactivity.

So the atom is conceived to be a constellation of electrical entities in lightning-like motion but held in dynamic equilibrium by the energy of their respective attractive and repulsive properties. These patterns are not clear-cut, rigorously identifiable structures wherein the particles can be definitely identified and located. Their behavior, as per the single electron in the hydrogen atom, would be found in an orbital around the nucleus rather than anywhere else. The contours of an atom are not thought to be clearly defined nor limited but extend indeterminately into space, somewhat after the behavior of "waves of probability." Every atom enmeshes, so to speak, into the constitution and behavior of every other atom, thereby imparting a unity to the whole universe, and making the volume of each atom the volume of the universe.[27]

An immense amount of research has shown that there is a score or more of onta in the nucleus, all held together by forces that are new to the old, classical physics. One spectacular, far-reaching result has been the possibility of converting mass into energy—the famous Einsteinian formula of $E=mc^2$: E stands for the amount of energy in ergs, m is mass in grams, and c is the velocity of light in centimeters per second. This nuclear energy is what holds the nucleus together. It can be made available by breaking down a nucleus into two or more particles, thereby releasing this binding energy, commonly in the form of heat. For example, one pound of uranium liberates the equivalent of 1,000 tons of coal.

Another method for making this nuclear energy available is the fusion of two nuclei to produce a nucleus of greater mass. Such a so-called thermonuclear fusion, for example, the energy liberated by one pound of hydrogen is equivalent in heat to the burning of 10,000 tons of coal. (Such a nuclear fusion is believed to be the source of the energy that the sun pours into space by the conversion of hydrogen into helium.)

> *Scholium 9:* Matter consists of many electrical particles held structurally in dynamic equilibrium by nuclear forces of enormous potential, operating in structural and functional patterns similar to those observed in solar and sidereal dimensions.

Fields

When a sheet of paper is laid over a magnet and iron filings are sprinkled over it, the filings arrange themselves in curved lines that run from one pole of the magnet around to the other pole, streaming across the space around the magnet. A small magnetic compass placed in this neighboring space is deflected from the north-pointing position of the needle. Faraday called such a space a *field.* So we describe a field as a stress in space. Other examples are the gravitational field, water itself in the subject of hydrodynamics, biological field in the living organism, biochemical field in the physical-chemical processes (metabolism) of a living organism, climatological, cosmic, geophysical, photo, psychic, and others.[28]

The universe seen *supra* to be full of radiant energy is a vast field. This fact is manifest in patterns in accordance with the laws of order and being. Since these laws are not perfectly obeyed in the sense of their perfect predictibility and reproducibility as we saw above under the phenomena of uncertainty and probability, there must be some disorder (as we apprehend it). This eventuates in producing another order. No two objects in nature are exactly alike, apparently. Bentley found that the 400,000 snowflakes which he photographed all differed in one degree or another. Whitehead maintained that concrete enduring entities are organisms in which the plan of the whole influences the character of the subordinate parts, down to electrons.[29] Thus an electron within a living body is held to be different from one outside the body.

The doctrine of wholeness embraces the idea that the whole of an entity is greater than the sum of its parts. This wholeness introduces a new force or influence that by drawing entities into new and closer relations is creative in bringing new entities into being. These constitute values,* emerging from lower forms or structures into higher, more complex ones, analogous to the work of mind.[30]

The elementary particles of 1930-1960 depend on their setting in much larger environments, and when grouped possess collective properties.[31] The observed universe is a flux, possessing however structures which persist and recur, interfering "entities which are not observed." An unseen universe is necessary to explain the seen—"an intellectual focus where experiments, images, mathematics, and principles converge."

> *Scholium 10:* An electrically charged body is immersed in a spatial stress behaving as a patterned vectoral force called a field, exhibiting a functional wholeness that includes the enveloping space in dynamic equilibrium with the charged entity.

Psychic-like Properties

In ancient and mediaeval cosmology, the ideas of matter, life, and mind were fused indistinguishably.[32] However, in the thought of the sixteenth through the nineteenth and most of the twentieth centuries, the idea of the soul was challenged, and physics dealt only with orderly and sensory phenomena with all properties of matter explicable as functions of activity: *qua* extended, as material; *qua* moving, as alive; *qua* orderly, as intelligible.

The idea of a world soul was held by succeeding philosophers such as Paracelsus, Bruno, Kepler, Maimonides, Leibniz, Goethe, and others.[33] Hering speaks of "memory of organic matter," Driesch speaks of "entelechy" (as a goal-seeking force), such a modern physicist as Max Planck in 1938 said that "the photons, which make up the light ray, behave like 'intelligent beings,' " and P. Jotdan in 1947 said that electrons possess "spiritual qualities" and that there is "protein life." Huttig in 1944 speaks of the "power of solid matter to remember." Technologists speak of the "aging" of rubber (Konrad 1950) and the "fatigue" of metals.

Modern thinking is giving sympathetic attention to the idea that matter is not inanimate. Haldane wrote that there is "obvious evidence" of life or mind "in socalled inert matter. . .we shall ultimately find them, at least in rudimentary forms, all through the universe."[34] Teilhard de Chardin wrote that there exists a sort of diffused universal consciousness throughout all creation, becoming better and better defined and increasingly evident as we go upward in the scale of organization–from matter through all the living forms.

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* desirable goals, functions, or objects

Psycho-physics. Sabine shows[35] that the final stuff of the world must possess both physical and mental* properties. He calls these *psycho-physical.* There is no idea here that they are in any sense self-conscious as in the human awareness of selfhood. He illustrates what he means by the phenomena of magnetization of an iron rod. When the rod is magnetized, it acquires the property of becoming magnetic throughout its entire length. Every constituent of the bar is thought to be a tiny magnet. This was possible only because the iron initially had such magnetic properties that rendered it *responsive* to non-material influence. It illustrates how the "within-ness"** is affected by the "without-ness" of the environment, recognized as complementary aspects of the drive toward complexity.[36]

The discussion under the rubrics which follow indicate that physical nature possesses properties which exhibit (or correspond to) what in man is called *psychical.* We see primordial inanimate matter behaving determinatively by imponderable fields. Matter in the universe is seen to have the property or capacity of "coming to life," in orderly configurations and behavior.

Jung uses the word *psychoid* in the sense that the lower, unconscious, and instinctive end of the psyche ties into the physiological, organic substrate, and this in turn into the physico-chemical organism.[37] He likens the psychic conscious as arising from the thresholds of energy potentials whereby materiality registers in the organism as awareness.

A large amount of experimental data on these borderline phenomena at the interface of physics and psychology (and/or life) has been assembled and discussed by Tromp.[38]

Atomic attraction. The formation of chemical compounds proceeds only as particles react to form new combinations. Such a phenomenon is a joint action. It is not volitional as we ordinarily conceive of volitionality but it does describe behavior. It is the physical counterpart of love in the inorganic world as shown in all physical forces that unite, integrate, and maintain the whole inorganic universe. Beginning in the *on,* it ends with an orderly unified cosmos. It is the analogue of "love energy."[39]

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* Here mental describes the influence of fields analogous of mind to brain.

** Teilard de Chardin uses this word *within-ness* to mean the same as *consciousness* and *spontaneity* and to include all kinds of psychism.

Atomic cooperation (sociality). At these low organizational levels, this trait manifests itself as chemical bonding, cohesion of solids, properties of crystals, magnetism, and others.

The "exclusion principle" reinforces this idea of atomic pseudo-cooperation.[40] This principle asserts that no two particles of the same kind (e.g. electrons, protons, neutrons) can be in the same quantum state at the same time. It reveals "correlations which are not reducible to forces of the old accustomed kind." In quantum theory, these properties are called "exchange forces," not to be confused with ordinary forces heretofore recognized; these latter are non-dynamic in origin. For example, when electrons enter into structural relations with other electrons in forming an atom, they position themselves as if they knew the presence of other electrons. The incoming electron seems to cognize that other electrons are there, although no known force interfered with its movements. The entrance produced new properties in the resulting atomic structure, not predicted from the summation of the properties of the associated onta. There seems to be a sort of "social awareness," a behavior *as if* cooperative, an exhibition of a kind of sentiency. This social-like property or characteristic of molecules is described as a kind of interdependence, shown in the pattern of atoms of which it is constituted.

Individuality. An important discovery of modern physics known as the Heisenberg Uncertainty Principle (see page 13) shows that particles do not behave according to the mechanistic determinate causality in the classical Newtonian sense but that behavior follows only a "probability" response. This law of probability (or indeterminacy, as it is sometimes called) is as well attested as any other natural law. Phenomena under it, however, are observable only in the onta of sub-atomic dimensions. The gap between classical determinate causation and probabilistic behavior provides an area where behavioral uncertainty prevails. It provides opportunity for the improbable introduction of the effect of some new extraneous ("without") force or the release of some innate vectoral ("within") influence,[41] thereby introducing novelty. The structural difference between the new entity and its precursor exhibits individuality, perpetuating the old as it is incorporated in the new.

Purpose. The growth of a complex structure exemplifies the general course of nature. The behavior of onta to arrange themselves into atoms, molecules, crystals, rocks, planets, suns reveals an underlying force or vectoral component pointing to a beyond. This "urge" expresses a sort of unrest represented in the vector force to guide the many individual constituents into the constitution of the ensuing entity.

Sentiency. To move toward complexity and to advance into novelty exhibits a "satisfaction"[42] in the attainment of equilibrium with the environment in the situation "sought" and in the "felt" uniting of the many constituents into the content of the whole. Here is the germ of mind.[43]

Creativity. This "lure to transcendence" is observed in onta to pass to an emergent order. Nature is ever passing beyond itself. It is never the same twice but always with a basic orderliness and organization. New configurations arise by virtue of the fact that societies of onta (each distorted by its history)[44] constitute entities which are different from all other entities. This potentiality to advance into novelty eventuates in a growing complexity of forms. This novelty is revealed by the diversity of all entities from one essential pattern.

Memory. Since each entity (object) includes within itself the pattern of the whole of its past experiences, it follows that the present thing is an immediate, individualized, physically patterned structure of the whole of its past. Here is memory built into patterns of energy.[45]

"Throes of being." I have shown above that inorganic forces exhibit behavior that simulates phenomena at low levels that are exhibited uniquely in living organisms. Two great forces seem to be operative in opposing directions: the force of thermodynamics that drives entities into simpler ones, and another force that moves entities into greater complexity. The former is mathematical and mechanical; the latter exhibits attraction, individuality, purpose, sentiency, creativity, memory. Every entity comprises in itself the whole of history and exemplifying the self identity of things as well as their mutual diversities.[46] Entities are aspects of process expressive of innate force that seemed to be impelling energy to reveal increasingly complicated manifestations.

> *Scholium 11:* The particles of universal stuff exhibit properties of a kind of awareness that eventuates in their structuring and functioning as rudiments of consciousness.

Man's Adjustments

The great discoveries of the past several hundred years have created epochal changes in man's thinking. Conceiving himself as the prime concern of Creation, he pictured the earth as the center of the universe as an abode for him. The down-grading of the centrality of his place in the physical universe and the recognition of the myriads of other possible worlds where living beings can exist, leads man to wonder whether he is alone. The staggering effects of these successive adjustments from egocentricity, then on to heliocentricity and then galactocentricity have shattered his erstwhile cosmic outlook as it has developed over the past millenia. His own relative insignificance in the immensity and the evidences of his senses have left him confused as to what he himself is. Existence is deprived of its meaning as heretofore understood. He gropes for a new orientation.

Scholium 12: Man's discovery that instead of his being the central concern of the Creative Power, actually he is only an infinitesimal part of a gigantic whole represented by the entire universe, thereby wrecking his erstwhile sense of values, and necessitating a new orientation to the meaning of life's experiences.

SCHOLIA AND PERCEPTS FROM PHYSICAL SCIENCE

Natural Law

Scholium 1: Natural phenomena observed to be repetitive were expected to recur and this regularity became expressed as law.

Percept: Repetitive natural phenomena.

Mathematics

Scholium 2: Mathematics expresses in a system of symbols various relationships which have been intuited to exist among numbers and dimensions of abstract spatial configurations from which previously unobserved phenomena can be dependably predicted.

Percept: Predictive natural phenomena.

Changes in Phenomena

Scholium 3: Various physical effects of one body on another, either near or distant, produce behavior which is described as a change in energy content or the power of doing work.

Percept: Changes in phenomena.

Scholium 4: Nature is a structure of aspects of energy whose behaviour follows intelligible and predictable patterns of change

Percept: Disciplinary coherence.

Cosmos

Scholium 5: The cosmos is undergoing orderly change from simple to increasingly complex patterns of structure and function and then back to simpler ones.

Percept: Developing universe.

Scholium 6: The sidereal system of stellar bodies constitutes an enormous structure of distant bodies, developing out of hydrogen, exhibiting birth, maturity, and decay, and streaming storms of radiant energy from turbulent centers.

Percept: Orderly patterns of cosmic energy.

Scholium 7: The solar system embracing the earth exhibits the same kind of development that is observed sidereally, holding the assemblage of planets, comets, and meteors by the power of solar gravitation, and radiating energy as electromagnetic effects.

Percept: Solar system in sidereal pattern.

Scholium 8: Earth consisting of the same kinds of stuff that constitutes the sidereal population is undergoing slow development revealed by successive strata of rock entrapping increasingly complex fossilized forms of (formerly) living organisms.

Percept: Geologic sequence of fossils.

Nature of Matter

Scholium 9: Matter consists of many electrical particles held structurally in dynamic equilibrium by nuclear forces of enormous potential, operating in structural and functional patterns similar to those observed in solar and sidereal dimensions.

Percept: Matter as electrical.

Scholium 10: An electrically charged body is immersed in a spatial sphere stress behaving as a patterned vectoral force called a field, exhibiting a functional wholeness that includes the enveloping space in dynamic equilibrium with the charged entity.

Percepts: Fields as spatial tensions.

Scholium 11: The particles of universal stuff exhibit properties of a kind of awareness that eventuates in their structuring and functioning as rudiments of consciousness.

Percepts: Pseudo-psychic phenomena.

Men's Adjustments

Scholium 12: Man's discovery that instead of his being the central concern of the Creative Power, actually he is only an infinitesimal part of a gigantic whole represented by the entire universe, thereby wrecking his erstwhile sense of values, and necessitating a new orientation to the meaning of life's experiences.

Percept: Revolutionized perspectives.

From this cosmic orientation, we pass to the next higher dimension of cosmic process, namely, the phenomena of living organisms, the subject of Chapter III (Observed Phenomena of Biological Science).

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CHAPTER III. OBSERVED PHENOMENA IN BIOLOGICAL SCIENCE

IN the preceding chapter we saw that matter possesses a withinness that seems to reveal a pattern of organization that is manifested only in its effects. These are centered in carbon, hydrogen, oxygen, and nitrogen in bringing both complexity and stability in physicochemical conditions manifested dynamically. A great variety of phases and systems can be constructed out of these. Their general properties are greatly affected by the characteristics of the world itself and by the nature of matter and energy, of space and time.

The conditions on this planet provide a maximum of potential for producing "much from little." These are called teleological in that they entail a functional relationship between the harmony in the systems and the properties of the elements. The environment presents the same fitness as the properties of life.[1] For example, the carbon dioxide in our breath is the same as that locked into carbonates, and the oxygen that is essential for life is a constituent of the atmosphere and almost half of the earth's crust.

CHARACTERISTICS OF LIFE

Man has long believed that life is a mysterious force of some kind that was brought to the earth from some "out there." Usually it has been attributed to the creative act of some divine being. The Hebrew Bible describes such an event in a picturesque story of great literary charm (Genesis, Chapters I and II), where life is represented as the "breath" of God breathed into an earthly human body molded of inorganic mineral matter.

A Working Definition of Life

There is no clear definition of life that is universally accepted by all biologists. Much emphasis is placed on uniqueness of self-reproduction, mutations, and self regulation, growth, irritability (response to stimulus), organization, choice, creative power of mind, and consciousness. However, many of these phenomena exist also in the inorganic world, as in crystalography. Man's knowledge of life is his existential consciousness that his awareness coheres with natural phenomena.

Most of the attributes of life can be reproduced in non-living systems (inorganic nature). There is no recognizable "cataclysmic instant" before which there was no life and then after that instant there was life. Bernal settled on two necessary criteria:

1) The functional processes must have a certain dynamic stability, i.e. as "open systems" they must take in and pass out matter and energy without change, and its entropy may remain constant or even decrease (with stability determined by the rate of change of entropy being at a minimum); and
2) The functional processes must have originated in and developed out of some pre-existing system.[2]

The electron microscope has shown the continuity between the external structure of the protein molecules and the viruses. Once the size of 100 angstroms* or so is surpassed, new kinds of interactions imperceptible at smaller sizes become apparent. These manifest the long range forces associated with colloidal phenomena such as gel formation and co-acervation (precipitation of protein-rich solution from protein-dilute solutions as oil-like droplets).

> *Scholium 1:* Life is a phenomenon manifested by reactions of molecular organizations possessing properties of self-replication and increasing complexification.

Form

One of the basic principles of life is organization. Not matter but *form* is the permanent factor in an organism. The atoms constituting the bodies are continually being discarded as new ones take their places but the pattern and structure remain the same. Inorganic crystals behave similarly. These latter are structured with mathematical precision. If a part is chipped off, new deposits replace them to reform the original pattern.

Life functions in somewhat similar mathematically harmonious patterns. This is shown not only in the fundamental living metabolism of physical-chemical reactions in laboratories but in mathematically precise patterning of structural parts.[3] For example, the growth of a spiral snail's shell follows the pattern of a logarithmic or equi-angular spiral, for as the shell grows, the geometric pattern preserves similitude of successive sectors, exhibiting constancy of curvature. The width of the turns increases in the ratio of 1.618 to 1, the "golden mean."[4]

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* One ten-billionth of a meter.

This organizing force is dominant over physical-chemical forces and is exhibited in crystallization. The cube, tetrahedron, and the octahedron are found in natural crystals but the more complicated icosohedron and the dodecahedron are found only in the skeletons of small sea animals; they never occur in inanimate nature.[5] The universe is structured and functions "as a hierarchy of dynamic systems, each with a definite degree of stability, individuality, autonomy, and durability."[6] Nature's patterning is inherent "and the order unlying beauty is demonstrably there" and "the human mind can perceive it only because it is itself part and parcel of that order."

> *Scholium 2:* Atoms and molecules combine into more complex structures of mathematically precise form and function in synthesizing new emergent qualities.

Biochemical Ground

Biological science has been steadily progressing toward the molecular dimension of being. Molecular biology, biochemistry, and molecular biophysics form a logical sequence between the description of living systems and their physical milieu.

Living organisms are characterized by their ability to coordinate chemical and physical reactions so as to maintain dynamic equilibrium between the organism and its environment. This facility is fundamentally chemical in character whereby chlorophyl and hemoglobin incorporate material substances into living structures.

Chemical processes in the body, just as well as in the inorganic world, are driven forward by the phenomena of the increase of entropy. This is exhibited in the break down of complex bodies into simpler ones. The energy to go against this tendency calls for the injection of energy into the synthesis. This energy comes from solar radiation through the action of chlorophyl in plants.

The few chemical substances that predominate in the metabolism of living bodies are the fats, carbohydrates, proteins, vitamins, enzymes, hormones, and organically-bound minerals. Practically all are built on the chemistry of carbon (analogously, the bodies of the inorganic world are built on silicon). The fats, carbohydrates, had long been synthesized in the laboratory but the proteins were too complicated for the chemistry available. It was not until 1953 that Miller reported[7] that a mixture of methane, ammonia, water, and hydrogen, all in gaseous phase, and subjected to an electric discharge for several days, produced amino acids (the building blocks of proteins). Similar reports of syntheses by others followed, discussed by Wald.[8]

All living forms exhibit similar basic physico-chemical processes differing only in relatively minor degree. Biochemical characteristics of living organisms give clues for the classification of species.[9] Such an arrangement follows the same general pattern that has been based as currently on morphology. So chemical composition, anatomical structure, and physiological function are all related.

Protoplasm is chemically uniform for all life, indicating organic unity. Biochemical recapitulation follows morphological recapitulation.* The organisms that are highest in the evolutionary scale exhibit the greatest degree of individuality, shown to be characteristic chemically.[10] Examination of thirty-one various body constituents (e.g. urine, taste sensibilities, saliva, etc.) of twelve different persons showed that these varied quantitatively over a wide range: there was only one chance in 6,500 that any person had a gland of medium activity, exhibiting his individuality. Scientists find that neural, vascular, metabolic, skeletal, and various other physiological functions proceed in accordance with well-known laws of chemistry and physics. Neurologically, the impulse is propagated as an electric pulse under 100 millivolts, regenerated at various points along the cable-like axon by the electric potential that is built up from the passage of sodium ions through the nerve cell membrane;[11] the energy for the neural impulse propagating along the nerve comes from the metabolic processes of the nerve itself and not from the stimulus.

> *Scholium 3:* Living organisms display no sharp line of demarcation between animate and inanimate molecular systems, and exhibit behavioral properties in physico-chemical harmony with antecedent forms of entities.

Heredity As Chemically Determined

The genes are chemical compounds attached to the chromosomes in each cell nucleus. They possess the biochemical property of transmitting parental characteristics to the offspring. Each compound splits into two identical copies of itself. The union of two such half-molecules (one each from the respective parent) imparts the heredity traits from generation to generation, therefore immortal. Four amino acids in various combinations determine the heredity code in every living organism. This genetic code is identical in every cell of a given organism. A gene has been called an "atom of life." It is about 11 angstrom units long (11 x 10^{-8} cm.).The genes exert their respective traits not only by reason of their specific chemical composition but also by their relative position to one another in the chromosomic thread along which they are strung. This overall group or field effect exerts the directive structuring.

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*'Recapitulation' means an abridged summary in embryo of the evolutionary changes involved in the passage of vertebrates from a fresh-water to a terrestrial environment—a kind of "museum of evolution."

A gene may change in composition or position. This change is called a "mutation." This brings about a corresponding change in the characteristics of the host cell. These changes are brought about by certain chemicals and radiation such as ultraviolet light and nuclear fission radiation.

The metabolic activity of all living cells, both plant and animal, shows a remarkable uniformity, all pointing to a common origin. As was shown in the last chapter, molecules of biological importance may evolve. They themselves can mutate. There is cellular control of molecular activity as well as molecular control of cellular activity. Simpson adds that there is an organismic control of cellular activity and also a populational control of organismic activity.

Viruses are the simplest living things known to man.[12] They replicate their structure and behavior by means of genetic molecular codes of nucleic acid much like other organisms do—but with the exception that they do this only in a living host. A bacterial virus has been photographed by the electron microscope. About 0.0002 mm. long, it has a hexagonal, pyramidal-shaped head with a protein tail assembly of directing fibers to guide it to a cell.[13] The production of its own nucleic acid dominates the production of the host nucleic acid, with the result that the new virus proliferates and is discharged into the body.

Scholium 4: Heredity traits are stored and transmitted predominantly by complex molecules called genes.

LIFE AS A MODE OF COSMIC STUFF

Sources

Living organisms function in accordance with many well-attested phenomena used in laboratories. The close relations between chemical reactions and such a vital process as death is shown by the effects of heat-processing and of chemical disinfection in the killing of micro-organisms, following the law of a monomolecular reaction.[14] Also, like chemical reactions in general, micro-organic growth doubles with every 10° rise in temperature.

As shown earlier, energy is supplied by sunlight, either directly or indirectly through food. Breathing is an oxidative process involving the transfer of electrons acting for the storage and transformation of energy. By storing electrons in certain configurations, a molecule possesses a potency to react with other molecules. The reactive potency toward loss of energy produces the heat or energy loss measured as entropy.

> *Scholium 5:* Living processes utilize environmental sources of radiation to energize them to grow and develop against the counter flow of heat loss as entropy.

Biophysical fields

As shown in the previous chapter, interstellar space is full of various kinds of radiation. The influence of electrical phenomena is so pervasive that some one has described electricity as "the way nature behaves." Living things exhibit electrodynamic field properties .

The most extensive study of these fields around organisms is that reported by Burr and his students.[15] They found a relatively steady state of voltage differences between any two parts of a living organism. The voltage gradients gave characteristic patterns of growth, injury, sexual character, cancer incidence, and other specific physiological activity. A salamander embryo, rotated under capillary electrodes, created an oscillating current. An amoeba when living posed a positive charge against water. The excised nerve of a frog propagated an impulse initiated by an electrical stimulus and was recorded in the air surrounding the nerve.[16] The recorded values fall accurately on a mathematically predicted curve.

When two tissue explants were placed in the same culture, an "attraction field" was observed to form around the axis between the two explants. The plasma clot in the zone between the explants, when examined by polarized light, revealed a birefringent (double refraction) pattern "that resembled the lines of force of a magnetic field." The fibrin strands were under tension and underwent a gradual reorientation "from a brush-pile pattern in the freshly prepared culture to an oriented pattern the attraction field had formed." The intensity of the forces involved in these fields varied inversely as the square of the distance between the growing tissues. No cultures exhibited fields where the distance between the explants exceeded 3.6 mm.[17]

Gurwitsch reported that when an onion root fibrile was placed perpendicularly to another, the latter showed a proliferation of cells at the exposed area. Rays passed through quartz but not through glass. He called them "mitogenetic" because they increased cell division about 30 to 50 per cent. They were observed similarly in bacteria, yeast, eggs of lower animals, seedlings, potatoes, beets, blood, and other organisms. A mash made from the head (only) of a tadpole radiated this effect. Malignant tumors radiated rays far more strongly than did benign tumors. All work up to 1932 was reported by Gurwitsch.[18] This was confirmed extensively in many European countries but not so well in this country.

"Shadow" phenomena are described by Tromp[18a] from an electric field which remains on an insulated chair or bed from which a person has recently risen. All such radiation forces are weak and have been difficult to measure. Burr found that a sensitive voltmeter that measured three millionths of a volt was effective. The field behaves as an extension of the energy system beyond the boundaries of the object.

> *Scholium 6:* Living organisms generate areas of spatial tension extending their reactivity beyond their local physical contacts with other organismic and nucleo-electronic structures.

Open systems

In a physical world that is becoming increasingly disorganized by the operations expressed in the second law of thermodynamics (heat loss), evolution exhibits life as going just the opposite, namely, increasing the organization of energy. The body can automatically maintain a steady composition of the blood, constant temperature, and other normal functions–all in a changing environment. This phenomenon is called "homeostasis."[19] It reveals the organism as an "open System" maintained in a steady state.*

> *Scholium 7:* Living organisms maintain dynamic equilibrium physico-chemically with their environment and with one another.

ORGANISMIC CHANGES

Three years before Charles Darwin published his great book *Origin of Species* in 1859, the poet Tennyson in his "In Memoriam" penned the phrase "nature red in tooth and claw." This expression became a sort of cliche descriptive of the evolution process. Opposition to the evolution hypothesis became so emotionally embittered and partisan that the concomitant factors of co-operation and mutual assistance became obfuscated in the din of controversy.

Principle Underlying Evolutionary Ideas

The discovery of fossils (petrified forms of formerly living organisms) embedded in rocks and earth strata of successive geological eras revealed that the farther we go back in time, the simpler was the organism. In general, the deeper and more primitive the rocks, the lower was the organic structures that were uncovered. Strata below the Cambrian, laid down about 600,000,000 years ago, contain no identifiable evidences of any living organisms, although there is some indication from the presence of graphite that some low soft-bodied forms may have existed. However, green algae have been reported from the pre-Cambrian of central Australia, older than 2 x 10^9 years.[19a]

Such discoveries led to the supposition that all life began in some simple form and developed during successive ages into the present highly organized ones, including man. Evidence that overwhelmingly supports this idea lies in the fields of paleontology (fossils), mutations, taxonomy (structural classification of organisms, embryology (recapitulation), comparative anatomy (homologous organs), comparative physiology (grafting of homologous parts), domestication of animals, and comparative biochemistry. The fact of cross fertilization throughout mankind attests his common origin.

Table I shows the relation between the respective geological eras, the time approximately when the development occurred, and the state of the fossil development.

Table I. *Chronology of Evolutionary Development*

Geological era	*Years in millions since beginning*	*Representative organisms*
Cenozoic	1	man
	15–70	mammals, grasses, flowering plants, crocodiles, fish
Mesozoic	120–200	birds, mammals, trees, flowers, dinosaurs, insects, ammonites
Paleozoic	220–500	fishes, ferns, corals, conifers, insects, crustacaea, trilobites
Proterozoic	1,000	algae, sponges, scanty primitive forms
Archeozoic	2,000	first algae probable
Cosmic	5,000	porphyrin derivatives of chlorophyl

Scholium 8: Fossilized organismic forms were observed to increase in complexity of structure as geological ages advanced, exhibiting granular gradations from the simplest structural forms up to man.

Process of Evolution

On the basis of an immense amount of biological data collected from widely different areas, Charles Darwin gave his science a unifying principle: the evolution of higher forms from lower forms. He described four major factors operative, namely, natural selection, inherited effects of use and disuse, inheritance of acquired characteristics, and inheritance of spontaneous variations.[20] Although all four of these factors have not been verified just as he formulated them, the epochal value of his work lay in the great weight of evidence imparting overwhelming probability of the authenticity of the theory of evolution—so much so that the theory has attained the rank of validated law in the thought of many persons. Dobzhansky maintains that Darwin's theory of evolution has not been overthrown; it has evolved.[21]

Biological fitness is measured in terms of reproductive success, the principal causative agents being mutation, gene recombination, and natural selection. Animals possessing certain combinations of genetic factors leave larger numbers of offspring than do those of other genetic constitution. The progeny that are well adapted to the given environment will spread through the population increasingly compared with the slower rate of increase of their less well-adapted fellows.[22] These better adapted forms tend to spread out and supplant those that are less well adapted, and so are "selected."

Another great discovery was that of mutations, discussed earlier. The majority of mutations are more or less harmful because they make changes in an already well-adapted host. However, one may be beneficial if the mutation occurs in an organism that is in an environment more favorable for its growth.

The origin of new species is a slow gradual process, taking many generations. Scores of new species have been made by "cataclysmic evolution" through the use of chemicals.[23] The first man-made change was made by Karpechenko, the Russian geneticist, in 1927. These are entirely new and arose from pre-existing organisms.

Species are a man-made classification based on a convenient method for identifying them. On the Dover chalk cliffs, the fossil ecinoderms at the top and bottom respectively are so different that they are considered to be different species. However, meticulous exploration revealed that continuous series connected the top and bottom forms, constituting the *Micraster.*

There is no perfect continuity from the earliest forms of life to man. Gaps in the series occur all along the line. But increasing discoveries in the field are decreasing these discontinuities. Smuts follows Whitehead in maintaining that matter displays an inner creative harmony pointing toward a creative synthetic factor called 'mind.'[24]

> *Scholium 9:* From primordial inorganic cosmic stuff, an increasing synthetic complexity of structure and behavior has been developing into functional wholes of conscious entities.

Mind

The lowest level of animality has no brain. The largest sponge has no nervous system, and polyps have only an irregular network of nerve cells and interlacing fibers extending over all the body.[25] The brain developed out of improvement in the neural system. Cerebralization progressed from the lower vertebrates up to man as shown as follows:

Anthropoid apes	not over 600 milliliters in brain size
Gorilla	650 milliliters
S. African ape man	450-640 milliliters
Java man	840 milliliters
Peking man	1075 milliliters
Neanderthal man	1400* milliliters
Cro-magnon man	1400 milliliters
Modern man	1350-1400 milliliters

* qualitatively inferior

Increase in brain size facilitated the development of immense numbers of cortex cells, the basis for reflection, creativity, and artistic expression.[26] The older behavior patterns stem from the neural ganglia embodying the thelamus of the primitive brain. It controls non-modifiable, automatic, instinctive behavior, and is the seat of the emotions. Its patterns of behavior are inherited and are chemically regulated the same for all men. It is characterized by reflex and autonomic activity. Growing from this primitive brain is the "new" brain characterized by the cortex. It consists of 10 billion cells linked together in complex patterns connected with the thalamus, operating on about 10 watts of electric energy. It functions as the seat of logic, imagination, intuition, discrimination, symbolization, imparting individuality and personality in differentiation from the animal-like sameness of the old-brain behavior. Mind is brain function.

Many of the mental characteristics of man are observed in the prehuman animal, as for example, simple reasoning, beauty consciousness, display of affection, rescue co-operation, and even rage. Chimpanzees learn tricks, enjoy tobacco and alcohol, develop irrational fears and phobias, and foreshadow good and bad possibilities. Teilhard de Chardin describes this stepup in intelligence to the development of the "noosphere."

> *Scholium 10:* Developing along with man's multicellular bodily wholeness, the neural system culminated in the emergence of the brain whose function has enhanced his power of adaptation to his environment.

Developmental Forces

The phenomena of the successive stages of creation are seen at the successive levels of the

Cosmic—seen in cosmology, astronomy, physical science;
Geological—seen in earth science;
Biological—seen in living organisms.

We observe every cosmic entity moving toward the synthesis of its own being with other entities of related potency, all moving toward a more comprehensive whole.[27]

Physico-chemical. The close relation between chemical composition and morphology is seen in the similarity of the pattern that develops. Certain chemical groups recur repeatedly: e.g. the nucleotides, the tetrapyrreles, the protein linkages, the fats, the carbohydrates. The relatively few elements that participate in biological processes impose further limits within which evolution can proceed. The driving force is the irreversible and the environmental fitness. A pulling force is the cosmic potency to increased synthesis, called here the

Supranatural. To Bergson, Alexander, Smuts, Morgan, and Whitehead, the stuff of the universe is seen as exhibiting properties in forms of energy behaving in a granular pattern of change. The evolutionary advances from unicellular to multicellular form was a continuation of what had occurred in the advance from electrons to atoms, then on to molecules, crystals, colloids, protoplasm, and organism.[28]

Evolution is thus seen to be causally directed but not causally pre-determined. Its course has been opportunistic along the line of adaptation; so it is purposive.[29] The distorting, individualizing effect of life on ordinary properties of molecules (see p. 26) have led some workers (among whom are Schrodinger, Delbruck, Sabine, Sinnott, Smuts) to look for a new type of physical law.[30] Heisenberg attributes these effects to forms of energy which we cannot express with the mathematical symbols currently used in physics.[31] The process of nature in its drive of development from simple structures to a much greater complexity is directed by an "ordering principle,"[32] achieving something "which neither physics nor chemistry can define."

This imponderable, suprasensory factor, manifested as a unique force called "life" has been given many names, among which are

- cosmic urge
- creative impulse
- elan vitale
- activity
- emergent evolution
- holism
- complexification
- natural selection
- heterogenesis
- functionswechsel
- chemism
- creative evolution
- finalism
- vitalism
- metakinesis
- biogen
- orthoplasy
- entelechy
- intro-cellular pangenesis
- many others

The germination of the seed or development of the embryo is seen as "goal seeking" but not as a volitional decision in an anthropomorphic sense.[33] The integration of body and mind exhibit a general power of bringing living entities into being. Man's mind can continue to develop by virtue of its openness; it is continually over-riding the automatic process of natural selection by invoking knowledge from organized experience to facilitate advantageous choice.[34]

> *Scholium 11:* Developmental forces are the reactivity of the constituent chemicals and the homeostatic adjustment to the environment, all within an identifiable but suprasensory field.

BEHAVIORAL PATTERNS

Cooperation

The controversy that arose when Charles Darwin published his great work on organic evolution led to the emphasis that "survival of the fittest" expressed the spirit of competitive struggle as the basis for this.

Soon voices arose with different emphasis. Among these were Lester Ward in 1893, Henry Drummond in 1894, and Giddings in 1896. Kropotkin in 1892 had emphasized especially the importance of cooperation in evolution and again in 1902. Montagu shows[35] that Darwin's thesis of natural selection was correct but that he erred in over-emphasizing the competitive aspects. This principle is supported by an impressive bibliography in the fields of genetics, biology, ecology, anthropology, physiology, sociology, zoology, and is illustrated by the social life of insects and animals as revealing deep-seated potentialities in this behavior.

The multicellular organism is the most successful organism in nature. Gregarious entities unite to form larger units of cooperating numbers for mutual aid.[36] This engenders the obligation to compensate, the beginnings at low levels of what at higher levels is called responsibility and duty. The development of insects and mammals stands at the apexes of long lines of parallel developments.[37] The potentiality for social life started far down the evolutionary tree and persisted to the top,[38] starting in the atom and moving on to greater selflessness of the units as they become parts of ever more integrated wholes.

> *Scholium 12:* Living entities function increasingly effectively as their constituent units advance in specialization and cooperative behavior.

Needs

Any revolutionary change that has survival value tends to be perpetuated. The trend of biological instincts to develop into the brain and mind attests the successful use of these instruments to enhance organic growth and to satisfy needs. These needs range all the way from gross bodily needs for survival to the more refined imponderable ones of mental desires. Tension ensues when needs are not supplied.

As shown earlier (p. 36), an organism's needs are highly individualistic. Such subjectivity is satisfied only when the person has great freedom in choosing and acquiring these necessities for his well-being. He seeks what he wants. This places values onto a biological base.

> *Scholium 13:* Organismic survival and functional health needs of body and mind are behavioral objectives.

Direction

The stream of life has zigzagged irreversibly toward ever higher levels of complexity.[39] This steady "complexification" reveals a vectoral force, called purpose,[40] not anthropomorphic volitional purpose but an ontologically based manifestation of a property of the stuff of nature. It is seen in the energy patterns of atomic structure moving on to molecules, protoplasm, cells, and the upper echelons of organism.

Increase in brain size entailed corresponding increase in the power of mind to channel behavior toward organismic "satisfaction" (as Whitehead puts it). This potency toward complexity is seen in man's hunger for self-fulfillment, meaning to rise above immediate levels of awareness to suprasensory dimensions of being. These are organismic values. These are facets of living which link biological evolution with human values.[41]

> *Scholium 14:* Increase in mental power reveals a vectoral force—purposeful in operation—within atomic structures operating to stimulate behavior toward the full development of the potentiality of self-development.

SCHOLIA AND PERCEPTS FROM BIOLOGICAL SCIENCE

Characteristics of Life

Scholium 1: Life is a phenomenon manifested by reactions of molecular organizations possessing properties of self replication and increasing complexification.
Percept: Living Entities.

Scholium 2: Atoms and molecules combine into more complex structures of mathematically precise form and function in synthesizing new emergent qualities.
Percept: Synthesis into precise form.

Scholium 3: Living organisms display no sharp line of demarcation between animate and inanimate molecular systems, and exhibit behavioral properties in physico-chemical harmony with antecedent forms of entities.
Percept: Organismic continuity with matter.

Scholium 4: Heredity traits are stored and transmitted predominantly by complex molecules called genes.
Percept: Heredity by chemical genes.

Life As a Mode of Cosmic Stuff

Scholium 5: Living processes utilize environmental sources of radiation to energize them to grow and develop against the counterflow of heat loss as entropy.
Percept: Use of cosmic energy.

Scholium 6: Living organisms generate areas of spatial tension extending their reactivity beyond their local physical contacts with other organismic and nucleo-electronic structures.

Percept: Electromagnetic spatial tensions.

Scholium 7: Living organisms maintain dynamic equilibrium physico-chemically with their environment and with one another.

Percept: Dynamic equilibrium with environment.

Organismic Changes

Scholium 8: Fossilized organismic forms were observed to increase in complexity of structure as geological ages advanced, exhibiting granular gradations from the simplest structural forms up to man.

Percept: Sequential fossilization.

Scholium 9: From primordial inorganic cosmic stuff, an increasing synthetic complexity of structure and behavior has been developing into functional wholes of conscious entities.

Percept: Increasing organismic development.

Scholium 10: Developing along with man's multicellular bodily wholeness, the neural system culminated in the emergence of the brain whose function has enhanced his power of adaptation to his environment.

Percept: Brain behaviour as mind.

Scholium 11: Developmental forces are the reactivity of the constituent chemicals and the homeostatic adjustment to the environment, all within an identifiable, but suprasensory field.

Percept: Increasing individuation.

Behavioral Pattern

Scholium 12: Living entities function increasingly effectively as their constituent units advance in specialization and cooperative behavior.

Percepts: Cooperation as vital force.

Scholium 13: Organismic survival and functional health needs of body and mind are behavioral objectives.

Percept: Needs as behavioral goals.

Scholium 14: Increase in mental power reveals a vectoral force—purposeful in operation—within atomic structures operating to stimulate behavior toward the full development of the potentiality of self-development.

Percept: Conduct toward self-development.

The phenomena of mind as man's next higher development will be the subject of the next chapter.

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CHAPTER IV. OBSERVED PHENOMENA IN PSYCHOLOGY

WE have seen in the two preceding chapters that the stuff of the universe has synthesized into living organisms in a continuous granular development. This cosmic stuff—matter—is composed of aspects of energy culminating in the appearance of man. So the cosmos lives in man as truly as man lives in the cosmos. Man personifies cosmic immanence.

MIND

Characteristics

In living organisms we recognize a functioning aspect of protoplasm reaching its highest expression through brain and neural structure,[1] bringing spirit and personality out of inanimate matter. This system so regulated intro-cellular processes that a certain form and activity ensued. This pattern can then be called purposive in that it leads to a goal that the pattern forecasts.[2]

The very fact that there is a degree of spontaneity and creativity in the individual shows that the intra-cellular processes utilize a component that is not recognizable in terms of determinate physico-chemical forces. The sum total of these forces as extensions of protoplasmic causation is called "mind." It subsumes all the supraconscious influences in, emanating from, and affecting the system from without—behaving as a field.

Mind is recognized as a verifact emerging from biological science, extending life as consciousness into a new dimension. The power to communicate by means of symbols introduced a genetic factor of culture. Here knowledge directs evolutionary progress by making man the molder of his destiny. Knowledge from experience channels behavior and influences choice.

Scholium 1: The development of the brain and neural system engendered a suprasensory faculty simulating field effect in guiding development into channels as purposive.

Reality of the Psyche

Jung maintained[3] that the conception of the soul as an entity is as much warranted as that regarding the existence of matter, and that psychic happenings have an objective side. As integrated into the "collective unconscious,"* it expresses human needs and so bridges the living with inorganic nature.[4]

Weatherhead reports many cases of psychogenic disease caused by mental stress on body functions, as for example, the effect of emotional tension on mother's milk as this causes the child's illness.[5] Dunbar likewise shows how joy, sorrow, and anxiety increase the bile secretion whereas annoyance hinders it.[6] Elation and apprehensive emotional states accelerate basal metabolism, and vice versa.

Le Cron reports many instances where hypnotic control changed basal metabolism, pulse and respiration rates, stomach activity, bleeding.[7] Hypnosis in dentistry is steadily increasing, but not much is being said because of public misunderstanding.[8]

Tromp cites many investigations on psychic, biologic, and physical interaction, as discussed later under parapsychology.[9]

Yoga is a discipline of mind and body that facilitates the development of the consciousness toward a full realization of the self.[10, 11] The receipt of psychic impressions is reported by the recipient as being "enveloped by vibrating phenomena," expressed as rhythms.

Parapsychology. From ancient times, man has reported experiences that seemed to lie outside the kind of physical, sensory phenomena that he had learned to live with in everyday affairs. These exotic phenomena came as subjective visions or dreams. Often they were accompanied by filmy, human likenesses of intelligent human beings with whom the perceiver was acquainted (usually relatives). These apparitions were usually called "ghosts" but the current name for them is "phantasms." They usually were associated with some direful event, and were held to a degree in fear and apprehension.

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* "collective unconscious" is described by Jung as "a certain psychic disposition shaped by the forces of heredity; from it consciousness has developed."

For a long time these phenomena were held to be spirits of deceased persons, but the religious and scientific worlds discounted all such interpretations and considered them as fanciful and "old wives' tales." About one hundred years ago, a group of eminent scholars, particularly in England, became impressed that such phenomena should be seriously studied, so they organized the Society for Psychical Research in London in 1882. A little later, societies were organized in New York and various countries. These organizations collected reports of "occult" happenings and examined them with all the rigor of exacting inquiry. They established that "telepathy, clairvoyance and precognition are indubitable hard facts; that the evidence for them is as well-founded and reliable as for the basic facts of physics and chemistry."[12] Eastern psychology has emphasized for three thousand years self-transcendence in the "superknowledge" as the path to complete freedom.[13] The field embraces such phenomena as the following:

telepathy—communication of ideas from one mind to another independent of recognized channels of sense.
clairvoyance—"second sight" or the sensation of seeing distant objects independent of the recognized channels of sense.
precognition—knowledge of future events through non-sensory means.
poltergeist —a noisy spirit; the projection and breaking of objects, pelting, poundings, blows, often associated with the presence of a young person.
psycho-kinesis (tele-kinesis)—power of the mind to move detached objects.
apports—materialization of distant objects.
psychometry—information received by sensitives (mediums) from small objects that had been in contact with the person.
ectoplasm—a visible, ponderable substance that exudes from mediums (ectenic force) directed to move objects, take different forms, hardens so as to give resounding knocks, and is thought to be the bridge between mind and matter, being sucked back into the body of the medium.

All such phenomena are loosely called "Extra-Sensory-Perception" (E.S.P.) or "psi" phenomena using the Greek letter as a symbol for all.

Such phenomena seem to be forms of psychic energy.[14] It all manifests itself as a level of energy which is as much above that of ordinary living as the latter is above the plane of inorganic nature. Here again nature displays successive levels of the organization of energy characterized by increasing potency toward self-consciousness. All these psi phenomena are manifested through the expression of mind. This latter is closely associated with the function of the brain enhanced by the cortex. Man possesses the latter in greater amount than does any other animal (except the dolphin).[15] Although emanating from the brain, mind is observed to behave somewhat independently of the body. For example, many reports from credible persons assert that the mind as percipient consciousness leaves the body and views it lying inert on the bed, and even travels away from the premises where the body is left lying. In most such cases, a tenuous "umbilical" cord attaches the roving conscious entity to the body. When this is sundered, death ensues. The hundreds of cases of appearances of phantasms (both of the living and the dead) display memories and affection just like that of normal living human beings.

Scholium 2: The reality of the mind is demonstrably shown by the effects of mental states on bodily functions, and of consciousness in the acquisition of knowledge, in memory, and in creativity.

GLOSSARY OF TERMS

The words life, mind, soul, psyche, self and others are used so loosely in common discourse that I define my use of them as follows, using primarily Sinnott's terminology:[16]

mind—orderly directiveness of body behavior toward a goal.
spirit—unreasoned, spontaneous expressions of urges and emotions.
self—a dynamic system of goals distinguishing an individual from all others.
ego—"the style of the individual " according to Adler.
personality—"broad intentional disposition future-pointed" called the "proprium"[17]
soul—"the highest level of that goal-seeking, integrating process that is life."
psyche—all of the above.
motive—tendency to move toward a goal.
purpose—intent to reach a goal.
desire—the pull exerted thereto.
value—desirability of a goal.
goal—a norm in living stuff to which its growth and activities conform.

FUNCTIONING OF THE PSYCHE

Organization

Organization is a category equaling that of matter and energy. This phenomenon is revealed in Gestalten (patterned wholeness) psychology wherein sensations are grouped into patterns by the neural system. Regulatory activity in protoplasm emerges into patterns of instinct, then into the complex activities of the higher animals, and then on into the highly complex phenomenon of man's behavioral drives. Allport[18] sees the problem of "becoming" as intertwined with that of structure. The individual's personal values determine his objectives and steer his judgments. This dynamic power of process in "becoming" influences structure, affirmed also by Teilhard de Chardin in his "hominization" and by Sinnott in "goal-seeking." So organization is the dynamic patterning of intuitional direction or goal.

> *Scholium 3:* Behavior is directed by patterns of neural structure and functioning, largely determined by the individual's system of values and goal-seeking proclivity.

Patterns of Behavior

The old primitive brain gave a behavioral pattern that was determined by instincts and emotions, with no ideas as such. But the development of the new brain (the cortex), with its interconnections with the old brain, introduced higher cortical patterns, sometimes conflicting. The emotions, expressing inherited patterns, are not readily modifiable. The growing, developing individual learns that certain behavior is contrary to what is desirable. Out of such psychic disharmony, tensions arise.

> *Scholium 4:* Psychic tension ensues when high-level intelligent motivation conflicts with underlying, low-level instinctually and emotionally directed behavior.

Psychopathology

From the beginnings of recorded history, priests and philosophers struggled to alleviate this emotional stress.[19] Usually a sufferer from such illness cannot cure himself. Weatherhead asserts that the most potent factor causing neurosis (psychic disharmony) is the frustrated hunger to be loved. This includes desire for approval, for appreciation, for goodwill. When the psychotherapist sympathetically and understandingly enters into the perplexities and suffering of the patient, a high degree of rapport is established between the two, inducing the patient to unburden his mind and effecting a catharsis of the soul. He literally transfers to the physician the pent-up feelings that had developed. This is the phenomenon of "transference." The psychoanalyst bears the burden of the patient. Each gives himself to the other in mutual, uninhibited reciprocity of love and concern.

Psychotherapeutic love is strikingly similar to that love which charac-

Jung writes that the word "soul" arose from etymological roots meaning "moving force" or "life force."[31]

Scholium 8: The psyche is a special mode of energy functioning at several levels of consciousness in characteristic patterns.

Components of the Psyche

Consciousness. The psyche is generally recognized as functioning at two levels of expression: the *conscious,* and the *unconscious*(formerly called the *subconscious).* Each may merge imperceptibly into the other. Freud discovered, and Jung and Frank developed, through dream interpretation, that archaic vestiges of primitive patterns of thinking lay buried in the subconscious. These "archetypes" (Jung) or "proto-images" (Rank) have mustical religious overtones. This archetypal reservoir can discharge patterns of instinctual drive into the conscious. There the will selects, combines, and otherwise stimulates action that possesses an individualistic character.

The Person. The "self" is the subjective center of the individual, the experiencing "I." The "person" is the person as accepted by others—the "persona" of Jung and the social roles of William James. The "ego" is the organ or perception of the outside world. Different workers in this field have given different names to these areas of psychic meaning. Their terminology is correlated in the following tabulation:

Freud	Id	Ego	Super-ego	
Jung	Collective unconscious	Ego	Persons	Spirit
Rank	Proto-type	Will	Social sense	(Immortality)
Sorokin	Biounconscious	Bioconscious	Socioconscious	Supraconscious
Sinnott	Goal	Self	Spirit	Soul
Akhilananda	Subconscious	Conscious		Supraconscious
Eclectic (Shrader)	Subconscious	Self	Spirit	Soul

Self. Adler called the ego the style of the individual. Allport uses the word "proprium" or "self-function" to include all those aspects of personality that give unified character and clearly recognized style to a person and that distinguishes him from other persons. Moustakas describes the self as a pattern of experiences or being with "a forward thrust into the future."[32]

Radhakrishnan writes that the self is an emergent aspect of world process similar in all men through their interaction with the environment and facilitated by pursuit of knowledge, art, morality, and religion.[33] Maslow found the organization of the personality as a patterned complex of diverse behaviors, thoughts, impulses, and perceptions all integrated.[34] The totality of the consciousness and the unconsciousness is the self, the goal of psychic development.[35]

Spirit. Jung describes spirit as the dynamic principle of thinking and reason that organizes the archetypal images into unified, coordinated, harmonious behavioral structures which constitute personalities making man creative, enthusiastic, inspired.[36] Tillich describes spirit as the dynamic creative nature of man's personal and communal life.[36] Sinnott holds that spirit is that aspect of mind which is "unreasoned urgencies and emotions" leading to action; protoplasm bridges the gap between atoms and spirit.[37]

Soul. Man changes as his environment changes and his culture is variable within wide limits, whereas animality continues within rather narrow limits of variability. The "constants of human nature" are the modification of man's prehuman nature "that have equipped him to become the vector of cultural evolution." Man's variability goes beyond the restraints of nature's environmental limits. His experience and intuition expand to replace the dominance of the material universe. He philosophizes, he idealizes, he comprehends nature. His purposiveness becomes modified by learning, since evolution requires mutation and choice. Such decision-making involves discrimination and this in turn depends on information.

The Christian religious world, the Muslim world, and the Indian world maintain that the highest level of the psyche functions with the definiteness and singularity of an autonomous entity. This is called the soul—the highest level of goal-seeking,[38] personality at its highest,[39] the seat of the "higher human powers—love, reason, conscience, values.[40] The fact that man can err shows that the agent transcends the world of things.

Many persons think that the soul continues as a conscious entity after the death of the body. A vast literature reports events in which the services of a psychically sensitive medium (a "Sensitive") convey information to inquirers. In one series of studies to determine the degree of verity, out of almost a thousand topics handled by dozens of sensitives, there were 79.5 percent correct, 6.6 percent were incorrect, 7.7 percent were inconclusive, and 6.0 percent were unverifiable. In a total of over six thousand topics studied, 92.3 percent were verified as correct. The phenomena of parapsychology and the continuing publication of reports of contemporaneous interest in the subject bespeak a field of spiritual concern that offers as much challenge to research as space exploration does in our current space program.

The facts are that the "raw data" of this phenomena indicate (only) that the soul continues as consciousness after death of the body, and continues as a functioning entity in a higher dimension of being than our present earthly level.[42] Refutation entails the invention of "explanations" therefore which approach the fantastic. The subject is in about the same stage as was science in the days of Copernicus, Galileo, Roger Bacon, and even Charles Darwin more recently. There is not enough evidence to refute the idea, and that in support is not conclusive.[43]

> *Scholium 9:* The psyche expresses awareness of environment and consciousness of being ranging from unconscious to conscious levels, and functioning as person, self, spirit, and soul as sequential areas of psychic sensitivity and expression.

PATTERNS OF PSYCHIC EXPRESSION

Virtues

The fundamental virtues of goodness, truth, and beauty enunciated from the highest reaches of Greek thought, are shown by Sorokin to be transformable into one another.[44]

Goodness. The idea of the good has had many definitions. Montagu traces the concept of love—independently extolled by almost all peoples—as grounded on the basic desire for security. It is the only emotive drive that does not satiate nor create harm by its super-abundance. (For further discussion see Chapter VI.)

Truth. Truth is defined in Webster's dictionary as "conformity to reality." However, nobody knows just what reality is. Hence we have the cliche: heterodoxy today is orthodoxy tomorrow, and vice versa.

Man's impulsion to explore and to understand impels him to seek explanations from his experiences. His hunger for understanding is never satiated. He is driven by his nature to "advance into novelty." In his factual approach to physical phenomena, he uses the tools of science. In his intuitive, emotionally-stimulated insights, he uses the techniques of the arts. This continual "becoming" engenders his transformation as he pushes on into self-actualization and self-transcendence.[45]

Beauty. When a person hears certain kinds of sounds, his emotions are stirred—as from the opening bars of Beethoven's Fifth Symphony. When persons view great natural wonders, their ejaculations of delight die down as they quietly gaze and muse. They feel a type of consciousness that is too deep for utterance, a feeling of knowledge without understanding just what it is that is felt. But it enthrals them.

Anti-virtues. The power of the mind to transcend the realm of strictly sensory perception engenders a behavior in his goal-seeking that may not have prevailed in his evolutionary teleology. Such repression of experiential knowledge may entail psychic distress.[45] Repression in the realm of truth may engender error; in the realm of goodness, feelings of guilt; in that of beauty, a stunted psychic growth.

> *Scholium 10:* The virtues of goodness, truth, and beauty express qualities of psychic "being" manifested ontologically in normal healthy behavioral patterns of self-actualization.

Correlation of Psychotherapy and Religious Psychology

Long before Freud, Hudson maintained that psychic manifestation arose from a depth dimension of the soul, the "subconscious mind."[46] Freud held that psychic derangement stemmed from emotional stress that was engendered in the unconscious mind by distortion of vital forces of life. Later workers have shown that the psyche needs integration around the element of love, expressive of the self-less higher human powers of altruism, reason, values. Religion seeks to explore the mystery of being, concern for self-actualization in loving relation to mankind, mysticism toward oneness with the "All," and shared worship in common strivings societally toward common values.

Religion and psychiatry meet on the common ground that distorted value systems and authoritarian moral assumptions must be replaced by selfless devotion to the good life and freedom to live and let live. X

> *Scholium 11:* The psychiatric treatment accorded psychopathic cases of introversion and self-centeredness are the same behavioral characteristics of love and societal concern that religion emphasizes.

Religion

Religion is the expression of man's creative mind rising in passion-laden response in his reaction to the world of mystery.[48] It seems to be a *sui generis,* a spiritual inborn need of the psyche.[49] Man symbolizes his "forward intention" (Allport) expressively in art, poetry, literature, music, dance, drama. The practice of religion engenders the urge to self-actualization toward the illimitable dimensions of the cosmic scale of goal-seeking value. It provides an ever expanding realm of exploratory interest with attendent opening of avenues for the expression of, and the inflow from, soul-stirring cosmic influence. These bring psychic integration, peace of mind, self-actualization, societal acceptance, altruistic motivation and brotherly love, and a feeling of psychic security in the immensity of the cosmos.

> *Scholium 12:* Religious faith and practice bring a goal for self-actualization at cosmic dimensions that transcends the limitations of concern for transitory affairs.

Goal-Seeking

The universe is a complex organization of order functioning as the human mind does. This functioning is directional as shown by the evolution of stars and men. Man can assist it or oppose it. Ah!

He assists it when he learns to understand it. When man advances his understanding and knowledge, he increasingly identifies himself with nature and puts the edifice of his living onto the base that nature provided. Self-actualization becomes a behavioral goal, reaching into cosmic reality. Mind which began as the formative self-regulating quality found in all living stuff leads to the universally recognized high qualities of truth, beauty, and love (goodness). What helps to attain these goals is "right;" what retards is "wrong."

great

> *Scholium 13:* Cosmic directional process is given meaning by the discovery of the urge in all stuff to transcend present being into higher levels of organization.

SCHOLIA AND PERCEPTS FROM PSYCHOLOGY

Mind

Scholium 1: The development of the brain and neural system engendered a suprasensory faculty simulating field effect in guiding development into channels as purposive.

Percept: Thinking field from brain.

Scholium 2: The reality of the mind is demonstrably shown by the effects of mental states on bodily functions, and of consciousness in the acquisition of knowledge, in memory, and in creativity.

Percept: Mental effects on bodily function.

Functioning of the Psyche

Scholium 3: Behavior is directed by patterns of neural structure and functioning, largely determined by the individual's system of values and goal-seeking proclivity.

Percept: Life as process of becoming.

Scholium 4: Psychic tension ensues when high-level intelligent motivation conflicts with under-lying low-level instinctually and emotionally directed behavior.

Percept: Tension from divided motivation.

Scholium 5: Psychic tension underlying psychopathology entails psychic distress which may be alleviated by psychic catharsis and transference, with love and mutual concern as therapeutic agents.

Percept: Transference in psychotherapy.

Scholium 6: The harmonious interaction of the body under the guidance of the mind leads to normal healthful function of the whole organism moving toward normal growth, maturity, and self-development.

Percept: Health from mind-body harmony.

Scholium 7: Man has basic needs to keep alive and also a rising complexity of self-fulfillment needs of the mind and spirit as sensory transcendence.

Percept: Needs for living.

Modal Levels of Psychic Function

Scholium 8: The psyche is a special mode of energy functioning at several levels of consciousness in characteristic patterns.

Percept: Mind as energy.

Scholium 9: The psyche expresses awareness of environment and consciousness of being ranging from unconscious to conscious levels, and functioning as person, self, spirit, and soul as sequential areas of psychic sensitivity and expression.

Percept: Psychic functional levels.

Patterns of Psychic Expression

Scholium 10: The virtues of goodness, truth, and beauty express qualities of psychic "being" manifested ontologically in normal healthy behavioral patterns of self-actualization.

Percept: Healthful behavior in patterns of virtue.

Scholium 11: The psychiatric treatment accorded psychopathic cases of introversion and self-centeredness are the same behavioral characteristics of love and societal concern that religion emphasizes.

Percept: De-selfing in psychiatry and religion.

Scholium 12: Religious faith and practice bring a goal for self-actualization at cosmic dimensions that transcends the limitations of concern for transitory affairs.

Percept: Self-actualization in religious transcendence.

Scholium 13: Cosmic directional process is given meaning by the discovery of the urge in all stuff to transcend present being into higher levels of organization.

Percept: Universal urge to transcendence.

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CHAPTER V. OBSERVED PHENOMENA IN SOCIOLOGY

IN the preceding chapters we traced cosmic developments from their beginnings and saw that the "stuff of nature" possessed properties which led to the emergence of human beings as self-conscious intelligent entities. Out of their gregarious instincts and behavioral pursuits to gratify their needs, they developed a sensitivity to human relations, the subject of this chapter.

AREAS OF SOCIETAL INTEREST

Cultural origins[1]

The great concern of the primitive nomadic people of the East was to get to the next oasis. When they settled down to a sedentary life in the great river valleys, particularly the Nile valley and the Mesopotanian plain, their concern changed to planning ahead for the next crop. Way back there, man invented speech, tools, animal domestication, navigation, and all the fundamental techniques for human development. His culture took form in the neolithic village; even today four-fifths of mankind live in conditions approximating those of that level of culture. The social nucleus was the family cemented into orderliness by the elders. The experiences of their ancestors were revered. The community was small and self-sustaining. All this fostered an intensive community spirit of family and village loyalty.

Out of such a milieu, at widely scattered places, a few daring individuals interested themselves in matters outside of their local communities. Goods were exchanged between groups. Between 7,000 and 2,000 B.C. great technical advances were made from China to Egypt. This brought about an emphasis on property ownership and power. Labor became purchasable. Such a secularization extolled goods and ostentatious display. Civilized man became increasingly self-centered and assertive, with ever widening interests and ordered living.

Scholium 1: Man's change from a nomadic to a sedentary way of life entailed transformations in his cosmic outlook that fostered increasing self-development and self-centeredness.

Cooperation

We have seen in earlier chapters that socialization and individualization have reached their highest development by promotion of the welfare of others along with that of the self.[2] Whitehead points out that tribal primitive American Indians barely maintained themselves in accepting their environment as it was. The Europeans worked cooperatively to improve it so that now the same land supports twenty times as many persons. All men are seen as fundamentally one with one another and with nature, giving each an impulse of sympathy for all.[3]

Scholium 2: Organisms develop and function more effectively when they cooperate in creative harmony with other entities.

Knowledge

Commerce and education have helped man to see that other men are more like him than he had realized. The world-wide applause of appreciative audiences to noteworthy deeds bespeaks the mutuality of man's feelings toward other men. This is expressed most cogently by Shakespeare:

> Be noble
> And the nobleness that lies in other men ✓
> Sleeping but never dead,
> Will rise in majesty to meet thine own.

Western civilization has failed to recognize an entire dimension of human experience that the cultures of the East have known for centuries. This is intuitive, existential, aesthetic immediacy. Other names for it are "intuition," "inspiration," "revelation," "extra-sensory perception," "mystic experience," and so on. This creative cultural value has underlain art, philosophy, science, ethics, religion, and technology.

The traditional Orient has similarly failed to recognize significantly the formal, imageless, theoretically constructed type of knowledge in which the Greek mathematical physicists and the Greco-Roman Stoic jurists and moral philosophers conceptualized their contractual and technological discoveries.[4]

Together with the dialectic of reason and the testimony of the senses, these three—the truths of intuition, reason, and the senses—constitute the

"Integral" type of knowledge that has been most creative.[5]

> *Scholium 3:* Knowledge as revealed through the truths of intuition, reason, and the senses, shows that man everywhere is much like other men.

Reciprocal relationships

Man has learned that he must have the restraints of some common agreement with other persons in order to keep in balance the individual aggressiveness of healthy self-assertion against the social instinct of cooperation. At first this was done on the basis of intuition and the local customs of family and clan. Later, legal codes were promulgated, one of the earliest being that of Hammurabi (circa 2,000 years B.C.). Law has been defined as the operational definitions of ethics.[6]

From the common law of nature's processes, Oriental and Occidental ethics and jurisprudence part company as each develops its own particular cultural pattern. Oriental jurisprudence emphasizes a morality of tolerance in indeterminate mediation expressing the intuitive factor in man and validated by immediate experience. The Western technological civilization superimposes an additional factor—a theoretic component—which is intolerant, doctrinaire, and only indirectly validated, expressed culturally in Judaism, Christianity, and Islam. The living law of a society has been its conceptualization of the meaning of experience.

> *Scholium 4:* Human inter-relationships are harmonized by formulation of ethics into practical rules of behavior.

Freedom

The steady rise in societal culture—termed civilization—is observed to possess two components. One is the rising consciousness or sensitivity of the masses of the populations, and the other component is the inspired insight and expressions of gifted individuals. The former is a slow growth and is a long, drawn-out process of assimilating what has already been expressed. The latter is a sudden outburst that brings clarity to what has been a kind of hidden mystery. This latter has been at a maximum when men have been free to think, to ponder, to imagine, and to dream. During those eras when cloture and coercion prevailed, the advances in thinking declined. Ecclesiasticism and political repression have been the greatest offenders.

In the behavior of society, the fundamental force or drive that characterizes man is seen to undergo continual change. This reveals the drive to create as aggressively and positively giving form to experience, the essential nature of play and art.[7] This bridge between nature and man is seen as this individualism. Man's zest for expressing his own decisions is revealed in Franklin D. Roosevelt's formulation of the *Rights of Man,* as follows:

Freedom of speech and action
Freedom of religious worship
Freedom from want so as to live a healthy, peaceful life
Freedom from fear of any aggression

The most comprehensive of the rights of man was that formulated by the United Nations' Declaration of Human Rights,[8] summarized as follows:

Material rights (founded on the needs of the body)
Rational rights to information and education
Political rights for choice, personal liberty, formulation of public policy, protection from violence, fair trial, and others
Social rights to work

Scholium 5: Man is constituted to thrive only when he is free to fulfill his needs in accordance with his own ideas.

Evil

Man has experienced something apparently at the heart of things that appears to thwart his efforts to live and to develop his powers. Externally, he encounters the forces of nature such as disease, death, tornadoes, floods, famine, war, tidal waves, volcanic eruptions, and other such catastrophes. Among the primitives and ancients and carrying over into the mores of today, these baneful natural events were thought to be attributable to various categories of malevolent spirits and demons and even to the displeasure of supernatural cosmic deities or gods, often because these were offended at some violation of their wishes. Man himself could invoke the powers of nature through the machinations of magic to bring harm, suffering, and disaster.

In addition to these external (to him) causes of man's fear, anxiety, and unrest, there was another kind of frustration that led to the concepts of "good" and "bad," counterparts to "right" and "wrong." Man's innate characteristics of helpful cooperation and goodwill to his fellows were often vitiated by an opposite urge. After an unfriendly act, the person would feel regret, to say the least, at his behavior. This might be so poignant that he seemed almost to hear a voice from within his consciousness condemning him for what he had done, or *ought* to have done. This feeling of "oughtness" is a feeling of responsibility to behave in accordance with certain communal or societal standards of relationships to his fellowman. It interpenetrates all of his thinking and behaving. It was so intrinsic and all-pervading that it was ordained by some supernatural power. This idea of divine sanction to certain behavior patterns constituted what are called the moral law—an innate feeling that such and such behavior was "right" and the converse "wrong." Behavior that violated these moral norms or other standards of right conduct was held to be evil. There was no consensus of opinion as to what constituted morality as behavioral values differed among many ethnic groups—although certain fundamental ones were shared by practically all.

So evil had both an external, objective meaning as well as an internal, subjective one. It expresses the existential aspects of becoming.

The fact that these dis-values occur at all in an orderly universe constitutes the problem of accounting for evil. Nowadays, it is seen as a manifestation of the individualizing property of matter ("causa sui"),[9] inherent in its trend toward "complexification" (Teilhard de Chardin). This potency to "advance into novelty" accounts for all cosmic and biological development. In this process, the phenomenon of indeterminacy becomes manifest in the irregular or unexpected behavior of what was otherwise foreseen. The new unforeseen event may be advantageous or disadvantageous equally well. The operation of the second law of thermodynamics expresses the driving force of all living processes. When harmful or undesirable "evil" events occur, they express the negative aspects of man's values at the time, but when beneficial, the positive aspects. Underlying both is this same natural force. So evil as an aggressive entity is non-existent.

> *Scholium 6:* Evil is the description of any condition that keeps the individual or community from the greatest self development of which they are capable.

Bio-social progress

The behavior and ideology of human beings in a changing environment have altered to conform to the new milieu. Man has been alert to accept the challenge of a situation that bids fair seemingly to open avenues of enriched living. Such expansiveness expresses the tendency toward optimal self-realization. When these changes have moved society to greater sociality, from aggression to altruism, from bigotry to tolerance, from forcible repression to justice and freedom, from complacent satisfaction with conditions as prevalent to ones that enhance growth of spirit—this is social progress.

The character of this change has never been uniformly linear. Different scholars see it as recurrent in one form or another, e.g. Spengler in the life-like cycle of nations, Toynbee with his rise and fall of civilizations, and others. Sorokin sees two different types of integrated cultures as dominant rhythmically and alternatively in socio-meaningful systems: the "Ideational," emphasizing mainly spiritual values, versus the "Sensate," emphasizing the material aspects of living, e.g. science and technology.[10] The passage of a socio-cultural system from one of these phases into the other entails the integration of each into an intermediate "Mixed" or "Integralist" one. Twice in the Western world the Ideational predominated; three times the Sensate prevailed, currently dominating but declining.[11]

Some underlying system of cosmic outlook has been the basis for the development of each of the socio-cultural systems, inspiring their art, religion, and human relations.

> *Scholium 7:* Socio-cultural systems undergo change from one dominant cultural emphasis to another rhythmically and alternatively as internal and external forces impose new adjustments to enlarging experience.

Order

The vicissitudes of life, the changes in the environment, the confrontation with cosmic mystery, all coexistent with the instinctual urge to explore the unknown, have combined to impose an anxiety that searches for meaning. The first step systematizes knowledge into some kind of familiar pattern. It constitutes the ground for the development of a people's culture, a sort of inner pattern of being, and reduces the chaos of innumerable events into a comprehensible system.[12] Culture, as civilized behavior, expresses the underlying pattern.

> *Scholium 8:* Man's quest for meaning to the chaos of experienced events leads him to conceptualize their relatedness into patterns of being–logico-meaningfulness in living motivation.

Religion

Religion is one of man's oldest cultural forms and expresses in traditional symbolic archetypes his approach to reality. The world religions are the keynotes of the world's cultures. They have been the unifying force in guarding tradition, in preserving the moral law, in education. Religion has been a conative, creative, dynamic thrust into new being. The temples of the gods are man's most enduring works, and its priesthood has been the preserver of the traditional and the promoter of its cultural expression. It inaugurated the medieval university system and introduced formal education wherever it has penetrated. It underlies all the great literature and philosophy, and the operation of jurisprudence and government. The sacred law of nature constituted the norm that has ruled society.

> *Scholium 9:* Primitive confrontation of I-Thou in nature gave a realistic and transcendent ground for man's development in culture as creative of art, morals, knowledge, law, science, and philosophy.

VALUES

Nature

Value is accorded to that which is liked, desired, or approved. The "good" commonly is synonymous with value, although it has broadened to include the aesthetic, the logical, and the religious. It is a response to the drive for perfection. Axiology—the logic of value judgment—imposes the necessity for defining "good" as mathematics must define number.

A wide variety of meanings is given by the ordinary man, according to his background of culture. Values are fulfillment of ideals and are rooted in personal experience and inherited cultural archetypes.

> *Scholium 10:* Values are determined by man's desires and are measured by the degree of his hunger.

Biological Basis

Those materials and influences which preserve and enrich life constitute norms for the biologically good. Whatever enhances life has value. When a desired object or ideal is being obtained or attained respectively, our feeling-tone is contentment.

Morals, as instinctual drives, are expressions of the lower brain, the seat of the primitive instincts, emotions, and drives. The cortex of more recent development adds the dimension of reason to that of instincts. A society's need has been the basis of its value system. The various such systems extant in the world are different ways of pursuing these goals. The ethical problem is the question as to what action is to be taken to realize these satisfactions.

> *Scholium 11:* Behavioral patterns rising from emotional and instinctual urges of the lower primitive brain become subject to conative and discursive influence from the superimposed cortex.

Relativity

Behavioral patterns based on the cosmic properties represented by the true, the beautiful, and the good (the correlates of the truth of the senses, reason, and intuition), have become modified as man has developed his culture. Socrates brought out this relativity of morals in the case of the harm done by returning a borrowed weapon when such honesty would entail harm from its insane owner. Present with us is the practice of physicians in misinforming patients of their illnesses when such knowledge would be harmful.

Relativity in values is seen also in the changing viewpoint that follows from the gaining of new knowledge. Key concepts formerly were control, inhibition, discipline, training, based on the idea that "depths of human nature were dangerous, evil, predatory, and ravenous." The dominance of the system of Christian ethics and law declined with the Ideational sociocultural emphasis as it was replaced by the Sensate.

Civilizations are distinguished by their respective cultures or patterns of behavior called "style."[13] When these have changed toward their opposites in alternation, we note the tensions. When a given philosophy—and the natural science on which it is based—is changed, the social humanistic ideology has changed also.[14] The West's ideology has been based on Aristotelian immutable essences, Euclidean geometry, and Ptolemaic cosmology (latterly on Newtonian physics). The emphasis changed in the Middle Ages, the Enlightenment, the Modern, and the current. The world is now moving on to the new philosophical outlook where the non-Aristotelian cosmos of "becoming" and the Riemannian mathematics of geodesics and the Einsteinian physics of relativity call for an ideology where the "particular has something of the character of universality and universality is always exemplified in particulars."

The infinite variety of human life has rendered impossible the formulation of fixed rules of principles. Unmitigated dogma has bred dogmatism; the church, ecclesiasticism; science, scientism, bibliolatry, biblicism; law, legalism. This has "never produced a saint nor a Socrates."

> *Scholium 12:* Standards or norms for ethics vary among different sociocultural systems and are changing now as the underlying patterns of cultures are changing.

Variety

Cultural man has acquired many beliefs, underlying a variety of cultural patterns. These latter have been formulated into values. A study of human values based on a statistical analysis of reports from a questionnaire sent to over five hundred male and female students in higher institutions of learning in China, Japan, India, Norway, Canada, and 2,836 students from twenty-one such institutions in the United States showed that those from the East were found to be more societally-minded whereas those in the West were self-centered. Successive waves of naturalistic ethics in the West have run as follows:[17]

Aristotelian naturalism of Aquinas
Humanism of the Renaissance
This-worldly ascetism of the Puritans
Rational naturalism of the 18th century
Irrational naturalism of the Romantic movement
Industrial and scientific naturalism of today

Scholium 13: Stemming from a base common to universal man, a diversity of value systems has emerged.

MORALS

Natural law, as moral law, was first called the unwritten law,[18] binding every community of men together. It is grounded on the nature of man and the universe. Since it expresses man's understanding of the way that nature is structured, it therefore prescribes the way that man must act if he is to perfect his nature in the cosmic pattern. It passed into Christianity in the *Summa Theologica* of St. Thomas Aquinas.

Martin Luther wrote that even if Moses had never written the Ten Commandments, all men have it written in their hearts. David Livingstone is reported to have said that nowhere was there need for him to teach the African savages the ethical part of these commandments. The East has long held that there is a moral law at the heart of the universe expressed as Karma—the law of retribution.

The functioning of the universe *is* the moral order, since moral experience points to an objective moral order in reality just as truly as sense experience points to an objective physical order. Since man's biological needs are alike in all societies and since the logic of all men is the same basically,[19] the moral principles existing in every society manifest many similar features. For example, no society considers suffering to be desirable in itself. Sexual access through violence is universally condemned, along with incest. Murder, theft (usually), always cowardice, are not tolerated. Various moral precepts were observed long before the traditional theologians' "age of revelation" began.[20]

> *Scholium 14:* Man's living experience impressed him that his value system should harmonize with the cosmic order, thereby raising questions of right and wrong behavior.

ETHICS

Ethics is commonly accepted as the behavioral expression of the collective wisdom of the human race based on experience. As revelation it can hardly be distinguished from the stroke of inspiration underlying any invention or scientific theory. It is the fountainhead of jurisprudence in somewhat similar fashion that science holds to technology.

Natural law ground

Systems. There is no general ethos that is accepted by all men. Each culture has its own standards as determined by its logico-meaningfulness. There are Aristotle's *eudaimonia* (rational pleasure), the Roman's *prudentia,* Ciceronian *humanitas,* the Christian *agape,* Thomas Aquinas's *felicitas,* the Enlightenment's *happiness,* Bentham's *utility,* the English "gentleman," the evolutionist's progress ideal, the modern pragmatist's well-being, the American's "way of life" ("rugged individualism"), Goethe's and Schweitzer's reverence for life, the Chinese natural man, the Hindu other-worldly man, the Nazi superman, the Communist economic materialism, and then the welfare state, the classless society, and others.

> *Scholium 15:* Efforts of man to organize a coherent pattern of conduct entail many formulations of behavior conjectured to be ethically effective.

Character of normative knowledge. Classical ethics emphasized fixed traits and structural properties based on the idea of the essence of man—his intrinsic nature. However, modern man has concluded that there are no fixed norms with a basis in nature but he observed tendential existence in an advancing universe. Past guides—conscience, the moral law as understood, reason—all failed to give a universally accepted ethic. We now have a basis for ethical judgment in the biological factors of survival and health. These latter are "good" because life itself is good. The socio-cultural sphere finds a basis in biological, psychological, and other such scientifically based data. Historical perspectives also provide bases for ethical judgment.[21]

> *Scholium 16:* Moral and ethical norms are humanly conceived values as preferences of events, and have no empirically observed "being" as such in nature.

Rational basis for ethics

Analogous to the structure of science as based on observed *facts* of experience, Ducasse maintains that ethics can be based on the *valuations* of experience. For example, the idea that stealing and lying are anti-ethical is based on the observation that they destroy societal confidence, an attitude necessary for cooperation. But cooperation is necessary for survival and healthful living, universally acceptable as "right." So, that which opposes this trait opposes cosmic advance.

Ethics is an harmonious coherent system of orderly and amicable human relations. Since living organisms *increase* orderliness, they "consume" entropy.[22] Therefore Kant's Categorical Imperative* and the Golden Rule can now include this "thermodynamic imperative" that all men should behave so as to increase the order in their environment (so combating societal entropy—which may be considered here as natural "evil.") Actually, the development of civilization may be looked upon as the result of man's introduction of order into the societal environment. He builds houses to combat the disorder of exposure. He invents language to combat the disorder attendent on non-communicability. He creates systems of jurisprudence to combat societal confusion. He organizes education to convert heterogeneous experience into orderly knowledge.

Numerous scholars have emphasized the desirability of establishing ethics onto a scientific basis, conducive to universal acceptance. Margenau has done this.[23] On the P-plane commands are "oughts" expressed in society's ethical codes and jurisprudence, a verbalization of its logico-meaningfulness. Theories in science are correlates of codes in this system of ethics. Validation of their adequacy for socio-meaningfulness turns them into *values*.

There seems to be something innate in goodness which causes it to prevail over evil. In the long run, justice, virtue, culture, art, morality, altruism, the beautiful—all prevail over the ugly and repulsive.[24] Toynbee shows that moral forces (religious) are the creative factors which reconstruct decadent cultures. Sorokin shows that the Ideational and the Integralist socio-cultural systems of truth predominate in the fluctuation march of civilizations.

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* "Act only on that maxim whereby you can at the same time will that it should become a universal law."

Scholium 17: Moral and religious maxims and religious motivation when applied to behavior engender a reduction in personal and societal entropy, thereby harmonizing with vectoral life force.

Content

Standards for naturalistic ethics. The drive for species preservation is based on more than the discredited tooth-and-claw ethic.[25] It involves progress towards a stable society ethically. This result is achieved by a dynamic balance between individualization and socialization homeostatically, long known under the following rubrics:[26]

adaptation
adjustment
balance
benevolence
contentment
enrichment
equilibrium
full life
good life
greatest good for greatest number
happiness
harmony
peace of mind
progress
prosperity
satisfaction
security
self-control
self-fulfillment
self-sufficiency
well-being
welfare

Scholium 18: An ethically stable and creative society is obtained by a homeostatic-like balance between individuation and socialization.

Virtues. The virtues have been extolled by various scholars from adversity of premises. For example, Albert Schweitzer wrote that a person's needs can all be embraced under "well-being," recognized as "the inner perfection of the individual" and "reverence for life." Sorokin expresses love ("creative altruism") as giving maximal realization of the conscious and supraconscious potentials in man. Wild writes that existence itself is the behavior of tendential life to fulfill its potency for self development. Maslow stresses self-realization, Montagu emphasizes love and cooperation for health and survival, Rapoport the four "invariant" needs of mankind, Sinnott formal and spiritual goals, and many biologists stress survival and health. Maslow has worked out a system that was empirically determined; it can be condensed as follows:

1. Physiological, embracing bodily appetites
2. Societal, covering security and acceptance societally
3. Personal, grouped under self-actualization
4. Developmental, as conative and growth in wisdom
5. Aesthetic, covering the need for and appreciation of order and beauty

The commonly recognized virtues are grouped according to the foregoing classification, into Table II.

Table II. *Classification of Virtues*

Physiological (survival)	*Societal*		*Personal (self-actualization*	*Developmental (progress)*	*Aesthetic (spiritual)*
	Security	*Acceptance*			
food	hope	altruism	abundant life	achievement	art
sex	justice	appreciation		adventure	creativity
safety	cooperation	benevolence	belief	cognition	originality
body function		brotherhood	competition	commerce	meditation
shelter	love	charity		creativity	imagination
clothing	freedom	compassion	courage	curiosity	religion
housing	liberty	duty	extension	education	spirituality
air	rights	equality	fortitude	exploration	virtues
water		faith	freedom	inquiry	truth
		fraternity	defense	investigation	beauty
		friendliness	education	philosophy	goodness
		generosity		power	wisdom
		gratitude	speech	research	mysticism
		honor	work		
		loyalty	worship		
		respect	harmony		
		reverence	humility		
		socialization	independence		
		sympathy	industry		
		tolerance	integrity		
			magnaminity		
			meekness		
			patience		
			responsibility		
			perspicacity		
			serenity		
			spontaneity		
			style		
			temperence		
			veracity		

Scholium 19: Virtues are expressions (verbal and/or behavioral) of man transcending the urge of immediate self gratification and directed to the helping of others.

Codification. Numerous attempts have been made to formulate ethical systems into codes of general and widespread applicability. Reiser[27] formulated one based on Bertrand Russell's *Skeptical Essays,* summarized as follows:

1. Intelligence is the only reliable investigative tool. Insight is important but is not independent of experience.
2. Freedom to know the truth: seeking, accepting, transmitting.
3. Obligation to be as intelligent and well-informed as possible.
4. Right to explore avenues to truth.
5. All knowledge should be made freely and publicly available.
6. No man has the right to withdraw truths from the common fund of human knowledge without contributing something in return.
7. Experts in highly technical fields should interpret understandingly to laymen the factual information established.
8. Every scientist should analyze the social forces which surround and influence him, and interpret the consequences of his researches in terms of human implications and consequences.
9. "The will to believe" is the right of everyone when his opinion does not prejudice social action for better or for worse, e.g. euthanasia, birth control, etc. whose social benefits have not been proven.
10. We may infer the truth of new propositions when the new accords with the old—but new presentations (such as parapsychology) must bear the burden of proof.

The successful pursuit of science has been the outgrowth of an ethic which derives from the conscientious practice of scientists over all the world for the past three hundred years. It was not imposed by any authoritarian hierarchy.[28] It developed out of the spirit of the disciple itself, and emphasizes the following traits:

"Prime values"	*"Derived spectrum of values"*
dissent	freedom of thought and speech
freedom	honor
independence	human dignity
originality	justice
tolerance	self respect

Coulson lists the virtues of a scientist as follows:[29]

- cooperation with his fellows
- enthusiasm
- honesty
- hope
- humility
- identity of self with problem
- integrity
- patience
- singleness of mind
- judgment of values as to worthwhileness of research problem and fitness for publication

Scholium 20: Values and virtues have been formulated into codes of ethics for guidance of behavior.

Valuational base. Students in this field overwhelmingly rate the supreme good to be *love* or a related good such as self-transcendance, societal concern, or other ego de-centering emphasis. The Research Society for Creative Altruism (now disbanded) held its first conference at the Massachusetts Institute of Technology, in Cambridge on October 4 and 5, 1957.[30] Scientists and humanists from Austria, Germany, Hungary, Japan, Poland, Russia, Turkey, and the United States, expressed dominant emphasis on the ultimate value of unity through love. Closely following on this emphasis came self-realization as the full flowering of the self in ego de-centering and a widening interest in the welfare of other persons.

Scholium 21: Many scholars maintain that the supreme good is the virtue of love.

LOVE

Characteristics

The English language provides no words that distinguish between the different meanings of the word "love:" The Greeks recognized three modes of this virtue: *philia* is the movement of an equal toward union with its equal, *eros* is the movement of the lower toward the higher, and *agape* expresses movement toward a beneficiary unconditionally, which expressed the divine (transcendent reality). Fromm maintains that authentic love contains the four qualities of responsibility, care, respect, knowledge.[31] Montagu describes the characteristics of love in detail.[32] Some writers describe it as identification with other persons in sympathy and appreciation (Feuer). Love appreciates and respects others (Simpson). It embraces loyalty, mutual sympathy, and constructive competition (Emerson).

Sorokin, along with Tillich, has maintained that love cannot be defined because there is no higher principle with which to express it. The great majority of writers on this theme of love rate it as the highest value. In its rudimentary forms it is observed in the sub-human animals. However, Albert Schweitzer maintained that love is embraced in a broader concept of "reverence for life" meaning that life should not be destroyed wantonly or needlessly, with the measure of the need to destroy the alleviation of greater evils that might otherwise occur. The biological phenomenon of homeostasis is shown by Emerson to relate man to the welfare of all animals and plants. The basis of this in man's integration with his entire environment—animate and inanimate—entailing ethical responsibility for the conservation of wild life and natural resources.

> *Scholium 22:* Love is a universal unifying, creative, ego-transcending force of actuation toward concern for and participation in the well-being of others.

Biological basis

The striving of an organism for value in the conversion of its environment into a more favorable one for survival exhibits an expansive creative potency by increasing the malleability of its environment much beyond its own needs.[33] This advances the welfare of all, exhibiting altruism at a low level of nature. The mother-daughter relationship in cellular division of amoeba manifests this giving of self. Such behavior spells security, expressed in cooperation.[34]

This social instinct has survival value. Although both egoistic and altruistic impulsion have evolved, the latter have increased notably over the former, the altruistic traits becoming more pronounced with the development of the cortex.

> *Scholium 23:* Love expresses a kind of cooperation among persons revealing a deep-seated potency to self-giving. Sharing

Love as a necessity for health

During the past few decades, modern science has shown that the energy of love is indispensable for generation, continuity, and growth of living forms, for survival and multiplication of species, and for maintenance of health of human beings, discussed earlier. The health of babies when deprived of warm motherly love deteriorated rapidly in a carefully filmed study of what happened in a well-managed New York foundling home. Twenty-seven babies died during the first year; seven more died during the second year. Twenty-one survived longer but were so altered that they were classed as idiots. Except for motherly love, these babies had all the care and attention necessary for their well-being. Love in both forms of giving and receiving love was found to be necessary to preventing marasmus or wasting away. The bulk of juvenile delinquency are persons who were deprived of love. ✓

> *Scholium 24:* Love is a necessary factor for normal growth of body and mind, and for their healthy functioning.

Societal power

Sorokin has shown empirically that love-energy extinguishes interhuman enmity as exhibited among students, among patients in a psychopathic hospital, and among students and patients in a mental hospital. He showed ✓ experimentally that the practice of love stops aggression and enmity, is contagious in generating response in kind, is conducive to peace of mind, produces greater results in international relations than does force, and exerts salutary effects on health.[35]

The most influential persons in history have been Confucius, Gautama, Zoroaster, Mahavira, Moses, Jesus, Mohammed, St. Paul, St. Francis of Assisi, Mahatma Gandhi, and other such leaders of altruistic religions and morality. An interesting event illustrative of the superior power of love versus military force in overcoming enemies is recorded in the Bible.[36] The king of Israel with his captives before him "prepared for them a great feast; and when they had eaten and drunk, he sent them away, and they went to their master. And the Syrians *came no more on raids into the land of Israel*" (Italics added).

> *Scholium 25:* Love is far more effective than is force in assuring amicable and stable relations between individuals and nations. 37

Source

Over thirty techniques for increasing the power of love have been reported by Sorokin and his associates.[38] Among the simpler ones are various chemical, physical, and biotic agents, including various methods for control of the body functions. The subtle techniques include stimulation of one's creativity, meditation, and self-examination, especially the complex methods of the yogas, of Zen Buddhism, and of the founders of the religions of love and of the great monastic orders.

> *Scholium 26:* Love can be increased by determinate cultivation.

Love as a suprasensory force

Numerous cases of physical and mental healing have followed religious prayer.[38] A pastor "cured" a parishioner of enmity, recalcitrancy, bitterness, and trouble-making by his deciding to exercise goodwill toward the offending person and to "bathe" her in prayer and loving thought. What began as a willingness to love culminated in a warm feeling of love and the transformation of the person prayed for into a friendly, cooperative, and spiritually influential person.

In Frank Laubach's "prayer experiments," he fixes his attention on fellow-travelers, praying for their spiritual illumination. He recounts their spontaneous acknowledgments of salutary effects.[39]

These effects-at-a-distance when expressed with goodwill, empathy, and love are reported to reach down into the lower, sub-human forms of animal life: to horses, dogs, snakes, skunks, insects, and other forms.[40] A vicious Bengal tiger was tamed into a playful pet by showering it with kindness.

Bordo
"do

Sorokin writes[41] that a low-grade, ego-centered amity can be developed by purely conscious motivation such as fear, punishment, reward, even hate. But the supreme forms of creative love are achieved only by an ego-transcending technique of prayer (or meditation) to the supraconscious ground of being. From Zoroaster to Gandhi, these religious leaders all declare that they contacted his supraconscious reality directly. The similarity of its manifestations worldwide attests its ontology as the essence of being.

> *Scholium 25:* The spiritual geniuses who founded the world's great ethico-religious systems all asserted that they received their power by contacting extra-personal forces after complete de-centering of self.

The further study of man's behavior reveals increasingly complex patterns of action and thought called culture and civilization, embraced under the rubric of cultural anthropology or ethnology, in the following chapter.

SCHOLIA AND PERCEPTS FROM SOCIOLOGY

Areas of Societal Interest

Scholium 1: Man's change from a nomadic to a sedentary way of life entailed transformation in his cosmic outlook that fostered increasing self-development and self-centeredness.

Percept: Change in cosmic outlook.

Scholium 2: Organisms develop and function more effectively when they cooperate in creative harmony with other entities.

Percept: Cooperation in development.

Scholium 3: Knowledge as revealed through the truths of intuition, reason, and the senses, shows that man everywhere is much like other men.

Percept: Similarity ot mankind.

Scholium 4: Human inter-relationships are harmonized by formulation of ethics into practical rules of behavior.

Percept: Juridical societal orderliness.

Scholium 5: Man is constituted to thrive only when he is free to fulfill his needs in accordance with his own ideas.

Percept: Freedom to meet needs.

Scholium 6: Evil is the description of any condition that keeps the individual or community from the greatest self-development of which they are capable.

Percept: Evil is frustration.

Scholium 7: Socio-cultural systems undergo change from one dominant cultural emphasis to another rhythmically and alternatively as internal and external forces impose new adjustments to enlarging experience.

Percept: Growth patterns in rhythmic alteration.

Scholium 8: Man's quest for meaning to the chaos of experienced events leads him to conceptualize their relatedness into patterns of being–logico-meaningfulness in living motivation.

Percept: Meaning for cosmic order.

Scholium 9: Primitive confrontation of I-Thou in nature gave a realistic and transcendent ground for man's development in culture as creative of art, morals, knowledge, science, law, and philosophy.

Percept: Transcendence motivates civilization.

Values

Scholium 10: Values are determined by man's desires and are measured by the degree of his hunger.

Percept: Values from man's needs.

Scholium 11: Behavioral patterns rising from emotional and instinctual urges of the lower primitive brain become subject to conative and discursive influence from the superimposed cortex.

Percept: Behavior motivated by instincts and intelligence.

Scholium 12: Standards or norms for ethics vary among different sociocultural systems and are changing now as the underlying patterns of cultures are changing.

Percept: Values relative with advancing knowledge.

Scholium 13: Stemming from a base common to universal man, a diversity of value systems have emerged.

Percept: Different norms from common base.

Scholium 14: Man's living experience impressed him that his value system should harmonize with the cosmic order, thereby raising questions of right and wrong behavior.

Percept: Morals in cosmic harmony.

Ethics

Scholium 15: Efforts of man to organize a coherent pattern of conduct entail many formulations of behavior conjectured to be ethically effective.

Percept: Differing values determining behavior.

Scholium 16: Moral and ethical norms are humanly conceived values as preferences of events, and have no empirically observed "being" as such in nature.

Percept: Behavioral norms as quantized values.

Scholium 17: Moral and religious maxims and religious motivation when applied to behavior engender a reduction in personal and societal entropy, thereby harmonizing with vectoral life force.

Percept: Behavioral norms coherent with life force.

Scholium 18: An ethically stable and creative society is obtained by a homeostatic-like balance between individuation and socialization.

Percept: Homeostasis of individuation and socialization.

Scholium 19: Virtues are expressions (verbal and/or behavioral) of man transcending the urge of immediate self gratification and directed to the helping of others.

Percept: Virtues as personal transcendence.

Scholium 20: Values and virtues have been formulated into codes of ethics for guidance of behavior.

Percept: Codes as behavioral guides.

Scholium 21: Many scholars maintain that the supreme good is the virtue of love.

Percept: Love as the supreme virtue.

Love

Scholium 22: Love is a universal unifying, creative, ego-transcending force of actuation toward concern for and participation in the well-being of others.

Percept: Love as a creative force.

Scholium 23: Love expresses a kind of cooperation among persons revealing a deep-seated potency to self-giving.

Percept: Love as self-giving.

Scholium 24: Love is a necessary factor for normal growth of body and mind, and for their healthy functioning. .

Percept: Love as a necessary body need.

Scholium 25: Love is far more effective than is force in assuring amicable and stable relations between individuals and nations.

Percept: Love more effective than force.

Scholium 26: Love can be increased by determinate cultivation.

Percept: Love cultivation.

Scholium 27: The spiritual geniuses who founded the world's great ethico-religious systems all asserted that they received their power by contacting extra-personal forces after complete de-centering of self.

Percept: Transcendence in religion.

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CHAPTER VI. OBSERVED PHENOMENA IN ETHNOLOGY

EPISTEMOLOGY

THE material past of man can be recovered by substantially the same methods that are used in geology, paleontology, paleobotany, and related fields.[1] Epistemologically, the data of archeology "are just as contemporary as are the facts gathered by astronomers." This cultural history has its own pattern of exploration and interpretation.

Field studies of what primitive man was like and how he behaved are supplemented by such other sources as folk-lore, child psychology, genetic psychology, and the psychology of the unconscious.[2] A maxim of cultural anthropology (ethnology) is that man everywhere is fundamentally the same. That is why one century can speak to another. All men have basically the same needs to be supplied and the same cosmic experiences to explain. Additional light has been thrown on the antiquity of moral expression by linguistic science.[3] Such general qualities as "goodness," "truth," "purity," could be abstracted from language forms used before 5,000 B.C. Psychology, ethnology, and history join in showing that man is a worshiping animal and impressed by some sort of mystic awe at cosmic grandeur.[4]

> *Scholium 1:* Knowledge discovered about primitive man follows a pattern of logical and coherent thought that is as valid and authentic as that of any of the other cultural disciplines.

ETHNIC BACKGROUND

Human universals

Philosophical anthropology shows that human culture is creative at two levels: first, in the artifacts of human institutions (science, law, religion, economics, art); and second, discovering and conceptualizing a philosophy,[5] defining his final goals as values. Primitive man made all the prime inventions necessary for human development: language, the expressive arts, morality, use of fire and edged tools, domestication of animals, agriculture, and a body of traditional knowledge that was useful for physical survival and societal continuity—but also detrimentally as slavery, economic exploitation, social stratification and organized warfare. For the past million years or so, man has sought to rise above the limitations of his environment physically and spiritually. He struggled to stay alive and to grow to maturity. Furthermore he encountered experiences that stimulated him to ponder on their significance, thereby advancing him to meditation. This effected an enlargement of his consciousness, expressing this expansiveness in religious behavior of one kind or another.

Such spiritual development fostered his imagination. He struggled to express himself in ever widening areas of living. This enlarged system of value is the basis of man's science, philosophy, fine arts, law, ethics, economics.[6]

The "collective unconscious" is man's inherited psychic experience conveyed in mind; the "archetypes" are their patterns expressed in symbolic forms.[7]

Scholium 2: Man wherever found thinks and behaves much like other men in similar circumstances.

Archetypes

Archetypes are those beliefs which have always everywhere been held by everybody.[8] They rise from motifs that underly the consciousness, and are arranged or figured into (often geometric) designs or symbols, e.g. the circle (mandala), swastika, cross. They are revelatory of man's deep-seated recognition of the need for a unifying, harmonizing principle. Expressions of this are prayer, symbols, light, upward (skyward) source of inspiration, tabu, religion itself.

Scholium 3: Man's psyche carries unconscious (subconscious) patterns of belief which underlie and motivate his behavior.

Hominization

Man's well-being became dependent on an emergent self that was concerned with desirable goods (values) that went above and beyond the merely somatic and other goals of merely keeping alive.

Persistent through the ages is the belief in some form of life after the death of the body.[10] Various aspects are emphasized, as for example, reincarnation (metapsychosis), whereby the spirit of a deceased person will re-enter the body of a new-born baby and live a normal life anew. Such a cycle of re-birth recurs indefinitely.

> *Scholium 4:* Through meditation on experience man has developed and emerged into a supersensory dimension of being transcendent to necessitous biological function.

RISE OF RELIGIOUS IDEAS

Beginnings

Primitive man possessed a feeling for the solidarity of all life as a whole. Belief in the continued existence of conscious life after death of the body was universally held with the function of sorcerer and priest undifferentiated.[11] Since the spirits of the deceased were thought to affect the well-being of living persons, ancestors were worshipped to secure and maintain their beneficial effects. Practice of some form of death cult was universal. Astrology and alchemy were widely practiced.

The recognition of a transcendent Reality to which in some way man must orient his life eventuated in the development of the idea of a Saviour.[12] These varied in a wide range of character, from purely mythical exalted human beings to historical persons. Some were alleged to have been born miraculously, sometimes of virgin mothers, some were crucified, annually arose from the dead, miracle workers, enlightened banishers of sin, all animated by loving concern for the welfare of man.

Religious sanctions bound family, clan, and community into sacred fellowship. One aspect or another of religious expression motivated and characterized the cultural development of legislation, ceremony, the dance, art, science, philosophy, morals, imparting specific traits to every ethnic culture.[13] We observe these cultural characteristics early in Babylonian and Egyptian astronomy and mathematics with the concept of cosmic influence on mundane affairs. Worship of the sun by both the Egyptian and Babylonian religions reveals an early conception of the universality of the one great deity. The historic religions are seen to be structured similarly in that all have been based on a dominant superhuman reality of which man is conscious and toward which he must orient his life. This feeling was reinforced by man's confrontation with the awesome fascination and fear of the overwhelming forces of nature called the *tremendum et fascinorum*[14] (fearful mystery and fascination) which underlies the feeling for the sacred and holy. Such forces impressed man that he should orient his life to conform to this power's mandates.

Techniques of religious expression underlay the cultural development of legislation, ceremony, the dance, science, music, philosophy, morals, art, imparting characteristic traits to every culture. As his nature developed, man's view of life increasingly took on an introvertive emphasis.[15] Efforts to understand his environment led to the "fairy tales" of mythology.[16] This new dimension of his outlook was "time binding" in relating the past, present, and future. It was a survival value because it enabled man to remember experience and to provide for the future. It arose early in Babylonian astronomy. It held that there was a meaning behind every event. Witchcraft was rampant.

Early man conceived the celestial bodies as divine. It was generally held that the region around the earth, extending as far as the moon, teemed with evil spirits and harmful earthy exhalations, whereas the regions beyond the moon were of a higher order and were called ethereal. Each planet had its own Spirit. These, together with highly imaginative groupings of the stars into constellations, were held to influence earthly affairs. Much of this influence is factual, and much is speculative. As late as the fifteenth century nature was regarded as a living organism. The fifteenth and sixteenth centuries were largely occupied with the practice of these ideas.[17]

Preeminence was given to the worship of the sun. This was a recognition of the one great deity. All the great historic religions look to dominant deity[11] who is worshipped. This feeling was reinforced by man's confrontation with the mystery of the *tremendum* and *fascinorum.*

The publication in England by F. W. H. Myers of *Human Personality and its Survival of Bodily Death* in 1903 opened up a new dimension to human thinking.[19] Societies were formed in various countries to study the question and a great deal of positive information has been secured in conformation. It transcends elements with which he is concerned in daily living. He became conscious that the cosmos exerts an influence on mundane affairs. Worship of the sun by both the Egyptians and the Babylonians reveals an early conception of the sun as the universal great deity. The historic religions are structured similarly in that all have been based on the recognition of a supernatural deity to which man must orient his life.

Early man in Chaldea and Babylon, about the eighth century B.C., and the Melanesians recognized in man something additional, imponderable, which made him different from the beasts. It was *mana* to the Polynesians, *Orenda* to the Iroquois, *Wakanda* to the Sioux,*Mantu* to the Algonquins. It was called *Rita* in India, *Tao* in China, *Asha* in Itan, *Maiat* in ancient Egypt, *Dike* by the Greeks, *Fas* in Rome, and *Mishnat* by the Hebrews. These terms vaguely expressed aliveness, a something that gave character to the culture. The negative aspects of mana were *taboo* (tabu). This is something marked off from human use or contact. It could be applied to an article or place. Everything has its own particular kind of power. It may not be religious per se but may acquire this status. It represented a general awareness of the other-than-human aliveness of the world. It is the earthly expression of awareness of the spiritual or supernatural. Variations of its meaning often came close to a conception of the soul.

In Greece various cults arose supplementing the more or less amoral character of the Greek religion by introducing spiritual elements. Illnesses of both body and spirit were treated by the priests. Socrates called himself a physician of the soul.

> *Scholium 5:* Man's ago-old record shows that he recognized and sought to contact a spiritual realm that transcended his sensory perceptions.

Axial religious phenomena

In Europe and Asia within the span of several centuries beginning with the eighth, a profound change of a moral and religious nature took place. Zoroastrianism and Buddhism, the earliest universal religions, arose, and the transformations then begun were continued later by Christianity, Mithraism, Manichaeism, and later Islam. During this period, the prophets of Israel appeared with their messages. Confucius and Lao Tse brought moral and ethical order to China. Later, the Greek philosophers, starting with Socrates (469-399 B.C.), extended this emphasis on morality and spiritual values. In brief, man's behavior on earth was seen to have an eternal significance. Man realized a responsibility to transcendent powers for personal righteousness, in conformity to divine standards of morality. There had been sporadic revelations previously, e.g. by Moses, the Mesopotamian sages, the Egyptian Pharoah Tutankhamen, and the Hindu seers. But this enlightenment now came with such an outburst of spiritual power and in so many scattered places that it never faded out. This spiritual emphasis raised man to a higher level of being in continuation of the teleological principle of self-fulfillment, namely, the organization of cosmic energy vectorally into atoms, then on into organismic entities, then the emergence of mind, and now a new emphasis—love, the central element of personal integration and societal ethical concern.[20] A new self came into being.

Scholium 6: The emergence into consciousness of man's societal responsibility established love as a cosmic vector.

PROGRESSIVE DEVELOPMENT

All the distinctly religious systems which have existed for over one hundred years arose in Asia. Each originated in the special vision of some great soul who revealed cosmic reality. He verbalized his insights of principles that had been dimly felt for ages. This concept is "higher" than that underlying fetichism and magic. Religious growth is seen in man's passage from the religious level of the primitive to an orderly monotheism marked by the highest moral and ethical development universally available to all men.

Archeological Religious Expression

Looking back into prehistorical antiquity, religious artifacts fade out at the point where man himself fades out. The dead were interred in paleolithic times, as proved by the discovery of numerous human remains in cavities prepared to receive them or on or under stone piles, in an unnatural, nonsleeping crouching posture. The oldest stone artifacts found in the Near East cannot be less than 200,000 years old. The first Mousterian burials occurred 100,000 years ago. Belief in the afterlife is shown by the great megalighti monuments.[21] The evidence is clear that man believed in some kind of continuing existence after death of the body. Art makes its first appearance then.

Ancient religious expression

Primitive man possessed a feeling for the solidarity of all life as a whole. Belief in the continued existence of the soul in consciousness after death of the body seems to be universally held. This led to ancestor worship. Practice of some form of a death cult was universal.

Animism was a widespread belief that all objects are alive. A conscious spirit with a personal will was believed to inhabit each thing. Here was the beginning of the idea of the soul. Closely associated with this was the belief in an impersonal, permeative power throughout nature possessing psychic potency. It is *Mana* of the Melanesians, *Li* of the Chinese, *Manitou* of the Algonquin Indians, and others. By various rites, the favor of the spirit could be taken into the being of the votary thereby enhancing his own prowess. The "wisdom of nature" became known in Zoroastrianism as Asha, the wisdom of Ahura Mazda, the Wise Lord. In China, it became the "way of heaven," or Li. This order of nature was held to be maintained by the power of good.

No known society is without its taboo. The Semitic rites of holiness and uncleanness had such an origin. It indicated the beginnings of moral ideas.

Current religious expression

Of all the "higher religions" (emphasizing morality) which were once in competition in the Hellenic world, only six have survived: Zoroastrianism, Hinduism, Judaism, Buddhism, Christianity, and (since then) Islam.[22] Of all the philosophic systems the only two extant are Confucianism and Hinayana Buddhism. Less well-known are Jainism, Sikhism, and the Baha'i way of eclectic and tolerant brotherhood of all.

Surrogate religions[23] are some well-defined movements which are peripheral to the above classical expressions of religion. Such "quasi-religions" are chiefly Ethical Culture, Naturalistic Humanism or Scientific Humanism, Fascism, and Communism. They possess characteristics which Tillich describes as "ultimate concern for the ultimate."[24] They possess moral and ethical sensitivity and the surrogate of priests and rituals, but no theism.

Census of religion. The most recently available number of adherents of the leading religions are tabulated in Table III, as follows:[25]

Table III. *Approximate Religious Census*

Buddhists	158,692,000
Christians	993,055,000
Confucianists and Taoists	393,892,000
Jainists	1,500,000
Hindus	386,683,000
Jews	13,016,000
Muslims	445,949,000
Parsees (Zoroastrians)	145,000
Shintoists	78,632,000
World population	3,138,361,000

There seems to be a drift in religion and sociological emphasis toward the ethical monism, societal concern, and scientific technology that characterizes the Western Christian culture. The ethical monistic religions comprising Judaism, Islam, and Christianity embrace about 46 per cent of the total world population. All three of these faiths arose in the Mediterranean basin.

Pattern

Man's cultural development has followed a pattern, as follows:[26]

- Crisis—confusion, frustration, poverty in spiritual creativity, cross-currents in ideology.
- Ordeal—civic, national, and personal distress from imposed undesirable influences.
- Catharsis—expulsion of disorganizing factors and spiritual passivity.
- Charisma—spiritual empowerment for constructive behavior.
- Resurrection—emergence of "new being" in transmutation of values, spiritualization of mentality, and ennoblement of social relations.

This process has regularly brought on a re-vitalized spiritual culture manifested in a revival of religious interest and behavior (or the regeneration of an older one) and the emergence of new concern for transcendent values and responsible concern therefore. Time and again we read of the warnings of prophets, sages, and philosophers "lest we forget" the spiritual ground of the respective culture.

> *Scholium 7:* Man's religious expression has grown from early primitive crudities to exalted manifestations revealing the dominant influence of cosmic spiritual-like forces.

RELIGIOUS ETHNOLOGY

Man's religious expression steadily increases as he rises from the fossil era to that of early historiographic record. Strikingly, there appears at the higher levels, no new trait that did not reveal its presence at the preceding lower level.

Spiritual continuity with nature

Made of the same "stuff" that constitutes the universe, man is seen rising out of the geological ages, making human experience the "outcome of the history of the universe." Man is observed converting natural forces into spiritual values.[27]

All the ethical religions recognized a divine influence operative in the consciousness through the conscience. Every one hears it in one way or another as if it were a "still small voice." Its first recorded expression goes back to the *Memphis Drama* of Egypt, about 5,000 years B.C. The Chinese emperor Ta'ng in 1756 B.C. plainly enunciated this moral light. It appears in the fabulous sixth century B.C. in the flowering of the ethical religions. It carried over into the Platonic and Stoic philosophies, and thence into Christianity. It bespeaks the area of contact between the reality that is confronted in religious experience and the life of the secular world. Man everywhere has found that life must be nourished by harmonizing it with cosmic powers. Society becomes the Gestalt emergent from the norms of the persons who constitute it. Such a value system determines the character of the culture and its logico-meaningfulness.[28]

Scholium 8: Emergent from the stuff of nature, man has increasingly concerned himself to establish communication with transcendent sources of spiritual power expressed in conscience and virtue.

Characteristics

The axial (value conscious) religions rose out of man's rejection of the pantheons that their religious leaders had provided. Their principles may be summarized as follows:

1. Certain virtues are extolled, such as love, justice, honesty.
2. Transcendent power is available to help such behavior.
3. Such power is unavailable for self-centered persons.
4. Consciousness continues after death of the body.
5. Altruistic sharing of benefits with other persons are extolled.
6. Blissful consciousness—and in some cases, an eternal punishment—follows death of the body.

Scholium 9: Axial religions embrace ideas of the desirability for virtue, availability of spiritual help, unselfishness, life after death, societal concern, and reward after death for the righteous.

Morals

The moral rules of primitive peoples resemble in large measure those of civilized societies. This is expressed usually in monogamy, filial affection, reverence for elders, mutual protection, strong loyalties to friends and family, treachery toward enemies, courage, cooperativeness, and rudimentary justice. All family customs were surrounded with religious sanctity. Offenses against family and sex mores, property, and life were held as criminal. Evil doers in every society were restrained.

The Greeks were the originators in requiring that moral law be incorporated in civil law as justice, and the natural moral order impressed itself on Stoic philosophy. It was this sense of order that underlay the development of Roman law.[29] The structure and functioning of the forces of nature are seen as constituting a pattern of guidelines teleologically channeling the potency to action in harmonious fashion.

> *Scholium 10:* A harmonious balance between old-mind instinctive urges and cortical rationale about immediate events constitutes a motivation for action that coheres with the cosmic pattern giving morality a natural base for its norms.

These characteristics of man are emphasized as we observe his behavior in developing out of bestiality into hominization, expressed as history in the next chapter.

SCHOLIA AND PERCEPTS FROM ETHNOLOGY

Epistemology

Scholium 1: Knowledge discovered about primitive man follows a pattern of logical and coherent thought that is as valid and dependable as that of any of the cultural disciplines.

Percept: Mores of primitive man.

Ethnic Background

Scholium 2: Man wherever found thinks and behaves much like other men in similar circumstances.

Percept: Mores of universal man.

Scholium 3: Man's psyche carries unconscious (subconscious) patterns of belief which underlie and motivate his behavior.

Percept: Archetypes.

Scholium 4: Through meditation on experience, man has developed and emerged into a suprasensory dimension of being transcendent to necessitous biological function.

Percept: Hominization.

Rise of Religious Ideas

Scholium 5: Man's age-old record shows that he recognized and sought to contact a spiritual realm that transcended his sensory perceptions.

Percept: Religious behavior.

Scholium 6: The emergence into consciousness of man's societal responsibility established love as a cosmic vector.

Percept: Societal concern.

Progressive Development

Scholium 7: Man's religious expression has grown from early primitive crudities to exalted manifestations revealing the dominant influence of cosmic spirit-like forces.

Percept: Religious evolution.

Religious Ethnology

Scholium 8: Emergent from the stuff of nature, man has increasingly concerned himself to establish communication with transcendent sources of spiritual power expressed in conscience and virtue.

Percept: Quest for the transcendent.

Scholium 9: Axial religions embrace ideas of the desirability for virtue, availability of spiritual help, unselfishness, life after death, societal concern, and reward of blissful life after death of the righteous.

Percept: Axial religious emphasis.

Scholium 10: A harmonious balance between old-mind instinctive urges and cortical rationale about immediate events constitutes a motivation for action that coheres with the cosmic pattern, thereby giving morality a natural base for its norms.

Percept: Natural base for morals.

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CHAPTER VII. OBSERVED PHENOMENA IN HISTORIOGRAPHY

NATURE OF HISTORY

A merely encyclopaedic compilation of events is not history any more than a compilation of observations is science. History is not to be found in the P-plane; it is a structure of constructs inferred from inscriptions, manuscripts, eye-witness reports, and other such artifacts of man's conduct. Understanding, meaning, interpretation are the properly historical events. "History is humanity's knowledge of itself." It is the proving ground of values.[1]

Biological Background

History to the extent that it deals only with events (action) and not with meanings is an expression of the workings of nature. Man's freedom makes history and freedom to be synonymous, whereas nature and history are only correlates.[2] History is made possible by freedom of the spirit in making choices. A powerful moral influence flows from the terms in which an ideology is expressed. Interpretation is possible by reason of man's fellow feelings. His values motivate his behavior.

> *Scholium 1:* History as the record of human behavior expresses organismic inclinations.

Cultural origins

History attempts to recollect the whole of man's past experience. It frees us from over-emphasis on the eccentricities of the individual self by giving us a composite picture of the knowing self. Art, literature, and history all powerfully help us to apprehend our human universe.

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* Historiography is the human record of the development of man as expressed in the evolving course of cosmic events. Man is one of these events.

As shown earlier, man's previous experiences and knowledge were pieced together into a connected whole by myths, giving stability to life and constituting the base for creeds and codes. The Jews did this by rehearsing a vivid sense of man's problems as solved in the past and accordingly solvable in the future. This engendered hope. Christianity took over this heritage, making the idea available to man everywhere.

Scholium 2: By piecing together memories of past experiences, man constructed a pattern of knowledge of wholeness giving hope for the solution of further problems.

Religio-historical origin

At the beginning of history, religion was the whole of culture.[3] All the arts of common life sojourned within the historic body of religion, but when these arts—the dance, music, morality, legislation, philosophy, ceremony—became sufficient in themselves, they lost much of their potency and spiritual power.

To the ancients, the essence of religion was the rite. It essayed to secure proper relations with the powers that ruled the universe, the source of the temporal blessings that man wanted. Religion made no demands that seriously inconvenienced him. Morality belonged to philosophy. Philosophy produced the saints of antiquity: Pythagoras, Socrates, Plato, Aristotle, Diogenes, Epictetus, Apollonius. The beginnings of spirituality are seen in the emphasis given to morality and virtue, to a life of contemplation, scientific and mystic. But from the fifth century B.C. to the end of the first century A.D., philosophy had become emotionally sterile and coldly ethical. However, the introduction into the West of the cults of mystic union with the god gave the votary a warmth of personal relation to the divine.

The Mesopotamian common man's "wisdom" literature forced ethics into the official religion.[4] Man was more ethical than were his gods, an enlightenment similar to that in Greece. The advent of the axial religious emphasis, discussed in the previous chapter, agreed that there is a Presence to be found behind the conscious phenomena.

Starting with the Aryans in Asia, religion took two different paths: one of these, moving into India, turned to mysticism and asceticism; the other, Iranian, based on Zoroastrianism, emphasized a dynamic ethic. The Eastern branch extolled the saintly man; the Western branch, the honest man.[5]

The ordinary small man in antiquity was debarred from any hope of enjoying the benefits of religion as a personal matter. These were available to only the favored few at the top of the societal structure. A pathetic desire for self-assertion is expressed in the many epitaphs.

Scholium 3: From crude beginnings in magic and ritual for supernatural help in overcoming the adversities of living, man slowly introduced moral and ethical ideas into his religious concern.

PROGRESSIVE ASPECTS

Character of Historical Progress

As discussed in Chapter V, a profound analysis of history shows that sociocultural phenomena recur in alternate cycles. Sorokin describes these ideologies as "Ideational," "Sensate," and "Integralist."[6] The ideational expresses the truth of faith and intuition with unchangeable eternal Being as the true Reality. The sensate is that of materialism with 'becoming' (the ever-changing process) as the essence of ultimate reality. The integralist is a composite of both, expressed in the cultural transition from one of these extremes to the other. These ideologies have occured, predominantly in Europe, as follows:

Sensate	Creto-Mycenean art	1425-1125 B.C.
Ideational	Greek culture	Before 5th century B.C.
Integralist	Greek culture	5th and 4th centuries B.C.
Sensate	Greek culture	3rd to 0 centuries B.C.
Integralist	Christian	0 to end of 4th century A.D.
Ideational	Christian	5th to 12th centuries A.D.
Integralist	Christian	12th to 14th centuries A.D.
Sensate	Christian	16th to 20th centuries A.D.
Transitional	Decadent	Present

Such students as Schweitzer, Spengler, Toynbee, Northrop, and Sorokin agree that the growth of ethical values goes hand in hand with religious revival and that this emerges in times of decline of the sociocultural ideology. There seems to be something inspirationally creative and spiritually dynamic in the impact of the principles of religion on man.

Scholium 4: Religious thinking has exerted a spiritual dynamic that has underlain sociocultural vitality.

Indicators of progress

Change does not necessarily mean progress. This latter has been described as the increment of some value. The undulating curve that represents the rise and decline of cultural process is directed generally with an upward slant. When the decline sets in, the stable level is higher than that from which it started. There has been an accumulation of unlosable insights and arts, a sort of "mental ratchet" which prevents slipping all the way back.[7]

Indicators of progress are listed by King as follows:

1. Rise above a crude materialism—e.g. cruel sacrifice, exploitation of sex, interpretation of disease as divine penalty.
2. Worship as desirable *per se* for its own sake as communion with deity.
3. Introduction of intellectual concepts—e.g. from animism to polytheism to monotheism (universal, unifying, spiritual).
4. Conception of moral rectitude as being spiritually more significant than precise ritual.
5. Increase in recognition of the worth of the individual and his religious freedom.[8]

The progress of mankind toward a spiritual religion and a noble code of ethics occurred under the impact of great catastrophes.[9] Periods of comparative stability and well-being have scarcely ever given birth to a truly great religion or lofty moral ideal.

Scholium 5: Change is inevitable and indicates progress when there is increase in spiritual sensitivity and cosmic consciousness.

TURNING POINTS IN HISTORY

Starting back with the promulgation of the legal and moral code of Hammurabi (twenty-first century B.C.) and on through the legal developments of the Roman Empire, we see an increasing consideration given to the protection of individual man from arbitrary and capricious treatment, finally exploding in three epoch-making events that revolutionized the course of human development.

Axial religions

This world-wide awakening to a new conception of human values (already discussed in Chapter VI) had manifested itself in embryonic form previously to this flowering. The most fundamental early contribution was the idea that temporal events dealing with human beings had an eternal importance as evaluated in a final universal judgment with attendant rewards and punishments.

Some historians think that this axial (value based) outburst was the result of the slow diffusion of ideas after the fashion of other ideas. But many hold that the new vision and emphasis occurred in too many widely scattered places and in too narrow a time sequence to be attributed to the slow gradual effects of ordinary forces of ethnological diffusion.

The great religious movements emerging out of this awakening are still powerfully influential in the affairs of men, having survived longer than any other organizations.

> *Scholium 6:* In a relatively short chronological span, a widely-scattered vision of man arose holding him as morally responsible to transcendent being and revolutionizing his personal and societal relationships.

Career of Jesus Christ

The historicity of the life and death of Jesus of Nazareth has been fully substantiated.[10] The ancient historians, Pliny (*ca.* 64-114), Tacitus (*ca.* 55-120), Suetonius (*ca.* 75-120), Josephus (*ca.* 37-100), as well as Tertullian and Justin all report various aspects of his life.[11] The existence of the early church and its contemporaneous effect on the culture led to a reorganization of the calendar, starting the yearly dating from what was then thought to be Jesus's birth-date (now known to be six years earlier, designated as the year 6 B.C.).

After practicing the trade of carpenter, he rather suddenly broke into prominence when about thirty years of age by proclaiming that he was the fulfillment of a prophecy of the prophet Isaiah.[12] He described himself as the "Son of Man," a term long used in the Old Testament, appearing in Ezekiel 2:1, in Psalms 8:4, and in Daniel, written about 165 B.C. He seemed to have accepted the title of Messiah under restraint.[13] The idea of son pointed to a filial relationship with the Father (with which there is no parallel anywhere). His ministry was expressed in terms of Old Testament thought but the fourth gospel (St. John's) speaks against a Hellenic background of the Logos. He claimed that his death would be a sacrifice on man's behalf. The ideology of this mystery was anticipated in the myth cycles of Osiris, Orpheus, Dionysius, and Hercules, but the Christian projection of these differs in that of the historicity of the person of Jesus. He transformed an ideology into an event.

The Logos idea means the "Spirit of the Supreme, the Eternal Word." This Greek idea of the Logos as formulated law gradually took the form of mediator between the super- and the nether-worlds. Jesus is seen as uniting the Hebrew religious tradition and the Greco-Roman Stoicism of intellectual materialism. He personified this Logos in the warm, intuitively felt humanity of a loving person. This gave spiritual dynamic to what otherwise was Graeco-Roman intellectual theory. It captured the heart of Western man almost immediately in the simplicity and self-sacrifice that showed men the way to direct contact with God the Father. He advanced religion from a formalized God-covenant to a living, God-I relationship. He personalized religion.

Through his enablement, the Kingdom of God was to be the great body of persons who individually were loyal to the spiritual nature of God. The Christian community became the spiritual Israel of God[14] or, in Christian parlance, the Church as the "body of Christ." Jesus was described as "the" Son of God because he impressed men as being more like what they believed God to be than any other man that they had ever heard of. He revolutionized man's outlook by giving him hope for rising above his unimaginative, colorless, more or less servile status because he felt that Deity had concern for him as an individual. He raised expendable man to be a person.

> *Scholium 7:* The career of Jesus Christ revolutionized man's outlook by enabling him to rise above his pawn-like status to be an individual of concern to almighty deity.

Liberating revolutions

The whole movement of history is seen in the continuous struggle of man toward his freedom and individualization.[15] This ideal of personal liberty traces back through the Reformers of the late Middle Ages to the teachings of Jesus ("the truth shall make you free"–John 8:32), and beyond him back to the Jubilee Year of ancient Israel:

> "And you shall hallow the fiftieth year, and proclaim liberty throughout the land to all the inhabitants. . ." (Leviticus 25:10)

The urge behind the settling of New England (and several other areas of the New World) was the motivation for freedom. The clergyman, Jonathan Mayhew, led the earliest outcries for liberty that eventuated in the American political revolution of 1776.[16] The French followed in 1789 with their slogan "Liberty, Fraternity, Equality," popularized in the phrase "The Brotherhood of Man." This likewise flowered out of religion: the Jansenist resistance to political and ecclesiastical repression.[17]

Ideas of political freedom and liberty for personal expression have gathered force until now the whole Western Hemisphere, the major part of Asia, and large part of the Near East and Africa give some physical expression to, and much lip service to, this ideal that flowered from the great impact of the Christian religion on mankind, the worth of the common man.

Scholium 8: Man's age-long struggle toward freedom has been advanced by the influence of the principles promulgated by Christianity.

RELIGION IN HISTORY

The history of religion shows three great independent currents:

1. An unbroken chain. starts with the Atman-Brahman mysticism of the Vedic Upanishads, and then branches into the two lines of the Vedanta of Sankara and the Yoga system of Buddhism;
2. The Orphic-Dionysix mysticism leads through Plato, Philo, and the later Hellenic mystery cults to the neo-Platonic mysteries of Plotinus, and then on to pseudo-Dionysius the Areopagite. This latter nurtured the mysticism of the Eastern Church, later Christian mysticism, and influenced Islam.
3. Starting from Moses (possibly from Abraham), it continued through the prophets and psalmists to its culmination in Jesus, then on to St. John and St. Paul, weakening under the syncretist ecclesiasticism, and flowering again under the Reformers to the early biblical Christianity.

Philo united the Old Testament prophetic religion with Platonic mysticism and with some elements of Egyptian-Hellenistic mysticism of Hermes. The strains of prophetic revelation and mystic redemption unite in the history of Islam and Christianity. The Arabo-Persian Sufism (Mohammedan) ties into Hellenistic Gnosis and neo-Platonic ecstasy and also with the Vedic wisdom and the mystic meditation of Buddhism. The pagan faiths gradually died out in their encounter with the greater appeal of the historicity of Christianity and with the fact that it did more to win the hearts of the masses.

One of the best attested facts of history is that men of spiritual resources not only redeem catastrophe but turn it into a great creative moment.[18] As discussed previously, all the arts in common life rose from within the body of religion. One of the cumulative results of history has been the widening base of community.[19]

Zoroastrianism

Zoroastrianism, known also as the religion of the Magi, survives today in the community of the Parsees in Iran and in India, but many of its teachings are incorporated in the Old Testament, the Koran, and the New Testament. Its ancient scriptures are the *Zend-Avesta* containing the original sayings of Zoroaster. The Indian counterpart are the *Vedas.* From these roots, Manichaenism arose in the Roman Empire as a close competitor of Christianity.

Zoroaster taught that Ahura-Mazda is the one supreme Lord of life and creation, both spirit and matter coming from the one Being. Creation was divided between Ahura-Mazda and Ahriman, respectively the spirits of good and evil, the beginning of the idea of dualism. All men's thoughts and acts are recorded in the book of life, and wickedness can be overcome only by counterbalancing wrong behavior by a surplus of good works. Immediately after death, the net balance of earthly living determines the individual's destiny in a heaven of bliss or a hell of perpetual torment.

From simple beginnings the later *Avesta* brought in fire worship, angels, a creed, a priesthood, a temple worship, a ritual, sacrifices, animal worship, eucharistic fetes (nearly as old as those of Egypt), mystic ceremonies, symbolisms, high and low masses, the customary paraphernalia of ecclesiastical accretions, and worship of Zoroaster himself. The later Zoroastrian Church admitted repentance, expatiation, and remittance of sins. Complicated ritual and superstitious fear increased with the growth in wealth and power of the Sassanian Empire (226-642 A.D.) which had officially established Zoroastrianism. This religion succumbed to the vigorous onslaught of Islam.

Chinese religion*

Primarily China's interests have been concerned with the proper conduct of secular affairs secured through a meticulously practiced ritual. On death of the body, the soul or mind becomes spirit. A reciprocal relationship between this transcendent world of spirits of ancestors, and gods leads to the worship of them to preclude them from retaliatory evil. The people hold that a benevolent Heaven (T'ien) would even up the inequalities suffered in this life. A good deal of fatalism stemmed dimly on the will of the inscrutable Power that governs the affairs of men and maintains cosmic order. Many divinities and household spirits presided over various aspects of nature and the daily affairs of men.

Three great systems of social and religious thought have dominated the religious scene: Confucianism, Buddhism, and Taoism, all teaching the original goodness of man who can attain salvation by realization of his essential nature because the moral law is the law of nature. There was no emphasis on sin and guilt.

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* For the information in this section I am indebted to the following references:

Kenneth S. Latourette, *The Chinese–Their History and Culture* (New York: The Macmillan Co., 1964), and Hu Chang-Tu, *China–Its People, Its Society, Its Culture* (New Haven: Yale Press, 1960).

Folk religious expression. In order to foster the good will of the spirits of ancestors, an ancestral cult was performed with regular reverent attention, supplemented by a yearly temple ceremony with offerings believed to be useful to the deceased. The services of a shaman (an expert in dealing with the spirit world) would be invoked to exercise adverse influences. Necromancy, astrology, alchemy, fortune-telling, sorcery, magic—all were expressions of the close relationship that was believed to exist between life on earth and the diverse pantheon of ghosts, dragons, demons, and other adverse supernatural influences.

Confucianism. Historically, Confucianism is the oldest and most influential of the formal Chinese religions. It is based on the teachings of the sage, Confucius (*ca.* 551-479 B.C.). An agnostic humanist, he sought to influence men to follow lives of virtue, kindliness, benevolence, and tolerance, seeking to advance social and political harmony. "Heaven" (T'ien) was eternal and supreme as a loving Father, spiritual without form, and moved propitiously by virtue and justice. He propounded negatively the Golden Rule as "What you do not want done to yourself, do not do to others." On this principle the Chinese established their code of societal relationships modeled on the structure of the family with the father at the top and all the rest in successively lower levels of filial relation and concern. He taught that man could become a superior person and help to create a sound societal structure. Moral law was emphasized as part of the essence of things and that prosperity followed its observance. The imperial sacrifices, offered to Heaven once a year elevated Confucianism to the status of a state cult. Confucius himself was later accorded divine honors but was not so much worshipped as venerated.

Chinese religion emphasized the salvation of society in orderly development, the cultivation of character by education, and reverence for the forces of nature (Heaven).

Taoism. Like Confucianism, Taoism was both a philosophy and a religion. Knowledge of Tao—the cosmic way—comes only by mystic contemplation. In the first century A.D. it developed into a religion with confession of sin, cure of disease, prayers to the spirits, an elaborate angelology, asceticism, a priesthood, temples, and a large pantheon. It borrowed much from Buddhism. It promised blessings and immortality, supplying a human need that Confucianism had neglected. As a folk religion, it developed superstition, geomancy, divination, witchcraft, fortunetelling, astrology, alchemy, spiritistic practices, and other such necromancy.

Buddhism. Mahayana Buddhism entered China in the first century A.D. and introduced for the first time a formalized religion, with attendant paraphernalia. Its chief appeal lay in its promise of salvation and a Western type of heaven, purgatory, and hell. As a church, it contributed to a serene and kindly life. The influence of folk religion turned it into a religion of the common man.

Other religions in China. All the leading religions have been active in China, but the one with the largest following there—Islam—has only as much as one percent of the population. Christianity, although not numerically large, has exerted a disproportionally great cultural influence.

The development of mores out of the Chinese existential consciousness has emphasized optimism. It holds that the universe is morally trustworthy, with the moral law as part of the essence of things.

Religions of India

In contrast to the situation in China, India is the most religiously minded of all peoples. It is the theme of most of Indian art, literature, and drama, including the cinema. Every act of the orthodox Hindu's daily life is marked by some religious ritual. The underlying philosophy holds that all perceived objects are in fact illusions—*maya.* Only the soul—the true self or *Atman*—is permanent. On the death of the body it is re-incarnated into some other body of a higher or lower order of being dependent on whether the last life advanced the soul to oneness with Brahman—God.

Hinduism. Hinduism is the religion that expresses most completely the culture of the people of India. Since it is a combined religion and philosophy, its ideology is too abstruse for the masses of the populace. Therefore its forms vary over a wide range according to the local culture and needs. An underlying unity pervades the millions of divinities which express aspects of Brahman, the expression of infinite majesty, power, beauty, love, and altogether free from anger. Mind and matter are modes of the Supreme Power.

The main religious effort of the individual is to reach Reality—reunion with Brahman. To do this, he must overcome all desire and learn experientially that outside of Brahman all is illusion. Until this goal is reached, the soul undergoes a long series of rebirths until by cultivation of knowledge he attains release from illusion by union with the all-inclusive Brahman. The determining factor that routes the soul into the next incarnation is the law of Karma, the principle of cause and effect. The soul reaps the kind of life that previous existence has set.

This goal of union with Brahman may be reached by several lines of behavior such as adherence to the caste code, by asceticism, by meditation and devotional discipline, and by *bhakti.* This latter emphasized intensity of devotion as burning out evil passions in the way of faith, love, service, and dependence on the grace of Krishna available to everyone. It is the religious expression of the masses, because it is the most natural. One of the most popular paths to union with the Supreme Soul is that of Yoga, a state of mind attained by bodily practices which facilitate passage into a kind of bodily control that enables the purified intellect to experience the infinite bliss of freedom from all illusion and union with Brahman.

Hinduism holds that mankind exists at several levels of quality called "castes" intrinsic in the order of nature. Salvation as union with Brahman is open to only the upper class into which the lower classes can enter by certain rites or in the case of the lowest—the "outcastes"—through reincarnation.

The emphasis on the illusory character of secular life, with the inexorable demands of the law of Karma, engenders a profound pessimism, a docile acceptance of misery with no escape possible except by rebirth.

Buddhism. Buddhism expresses a belief that salvation is achieved by realization of the impermanence of the physical world and relief from suffering. Freedom from this condition is attained by the pursuit of morality, charity, patience, meditation, and wisdom. The practice of the good from selfish motives (for the sake of the reward of obtaining salvation thereby) versus service for the good of others for their sakes largely differentiates Buddhism into two great groups: the Hinayana school (chiefly in Ceylon, Burma, Thailand) and the Mahayana school (chiefly in Tibet, Mongolia, Korea, southeast Asia, China, and Japan), each in modified forms of various kinds. Buddhism has introduced high ethical concepts wherever it has gone, and it has inspired great art.

Since suffering is grounded in desire, the riddance of all desire brings peace. The "Middle Way" of temperance between the extremes of self-indulgence and asceticism is emphasized. Desire is destroyed by following the path of right conduct, right knowledge, and right concentration. Behavior that is governed by tolerance, kindness, contentment, benevolence, self control, harmlessness to others, temperance in everything, and concentration of mind to destroy all desire bring perfect peace—the Nirvana, a blissful state where all craving has ceased.

The Hinayana branch is the orthodox branch—monastic, austere, detached from secularity. The Mahayana rose three hundred years after the death of Gautama, idealizing compassion and rationality.

Other religious expression. Two other prominent religious systems in India are Jainism and Sikhism, both emphasizing the pursuit of kindness, tolerance, truth, honesty. Samkara in the eighth century developed a populous movement by emphasizing monism called Advaita—the only reality to which all else was illusion. Reality could be attained by disciplining the impulses through reason to unity with Brahman, the all. This brings peace, stillness, bliss.

Ramanuja (1055-1137) taught that the Ultimate Principle is real and so also are human souls. It is based on belief in a personal God. On release from worldly bonds by the devotional path of *bhakti*, salvation became a unification with the Ultimate Principle. It is warmly theistic. Vishnu is worshipped as the supreme lord from which all things emanate.

Judaism

Although constituting less than one-half of one percent of the world's population, the Jews have given such meaning to their history that two great world religions have sprung from this root—Christianity and Islam. This meaning has lain in their understanding of God.[20] A "single Lord of all being," he created man and confronts his creation in every aspect of man's consciousness. God revealed himself in his acts, first seen by the Jews in the stupendous delivery from slavery in Egypt. On the basis of this event, God instituted a covenant between the Jews and himself whereby he committed himself to their continued support if they on their part would obey him wholeheartedly. After the spectacular delivery of this horde of slaves from the mightiest empire on earth, God started them off by giving them the Ten Commandments, the moral basis of half the world today, stabilizing the social order.

To the Jews, God was the ruler of history. Nothing happened by accident. All events had meaning. A unique feature of Jewry was the work of a group known as the prophets. With no official status, they boldly proclaimed that (1) political stability depends on social justice, and (2) the behavior of a people is responsible for the condition of their society. Man's freedom of choice entailed guilt when it violated love and fostered injustice and divine disobedience. The later prophetic utterances, put into writing, became the basis of the Jewish canon of the Old Testament. The meaning that they gave to the Babylonish captivity in 586 B.C. was their waywardness. The institution of the synagogue, their biblical "Law," and their religious center at Jerusalem kept the covenant relations alive and provided the basis for the spiritual and political restoration whereas the northern ten tribes, lacking any such cohesive factor, were carried into captivity in 721 B.C. and oblivion. This small nation exhibited to the world the stabilizing factors of morality, justice and love.

Christianity

Christianity, rising out of Judaism, is based on the teachings of a Jew—Jesus of Nazareth. The uniqueness of his message lay in the positive triumphant character of the inward peace which he displayed and inspired. He impressed his followers that this is a God-visited planet.

The doctrinal structure of Christianity rests on two cardinal tenets: (1) the sin of the first man Adam has been transmitted to every person, entailing death and punishment because of offense to God; and (2) God sent his son, Jesus Christ, incarnate in human flesh, to die in place of man, thereby paying the penalty of death for man and thereby "saving" him. Through man's personal and individual acceptance of this mediation, God forgives man for the sake of the sacrifice of Jesus and redeems him into direct personal communion. This involves man's repentance of his sins, his forsaking of wrong-doing, his commitment to God-and-man service, and trust in God's grace for spiritual strength. This is Christian "faith." The Christian witness is based on religious writings compiled in the Bible, consisting of the Old Testament considered as authoritative because of being written by persons who had had direct acquaintance with Jesus.

Salvation is held to be the triumph of the individual over the coercive power of sin (opposition to God's will), and including union with deity, all in this life, after which he will enjoy blissful continuation of personal consciousness in heaven. In general, salvation is achieved by good works, devotion, and adherence to a set of beliefs and practices.

As the Judeo-Christians in the early days contacted the engulfing Graeco-Roman civilization, they sought to explain their religious faith in Hellenic terms. Many practices of contemporaneous cults, modified by cosmopolitan knowledge, became incorporated into the early Christian faith. The Gospel of God's love for fallen humanity is what distinguished Christianity from other religions. It had power to stir the conscience.

Differences of interpretation of the sacred writings (in the Bible), cultural differences among the races of men, speculation (often hair-splitting and sometimes contradictory and often fanciful) as to meanings, and the "debunking" effects of current modes of thought, have contributed to the granulation of the great body of votaries into several hundred sects and denominations grouped roughly into three expressions: the Orthodox (Greek) Catholic, the Roman Catholic, and the Protestant.

Christianity expresses its political ideal in democracy, combining the self-expressiveness of the individual with the moral checks of temperance, civic responsibility, and community-mindedness. This creates a brotherhood that is cemented and universalized through spiritual solidarity in God. The Christian doctrine of the supreme value of the individual soul is the ground of the democratic liberties.

Belief in the continuation of consciousness after death of the body is based on the belief in the resurrection of Jesus, interpreted by St. Paul as characterized by a "spiritual body." The soul, in full personal consciousness, is believed to spend eternity in blissful adoration of God. Heaven is held to be a place that is a glorification of an opulent oriental city ruled by God on the model of an oriental monarch who delights in adoration, praise, and grandeur.

Islam

Islam, the youngest of the great world religions, was founded by Mohammed in Arabia (570-612 A.D.). In long vigils of meditation over the current chaotic moral conditions, he claimed to have received visions from Allah (God) calling on him to preach a pure monotheism and moral rectitude, revealed in successive inscriptions on heavenly tablets and recorded as the final and absolute work of God in the *Koran*. It includes many Jewish and Christian tenets.

The personal character and ability of Mohammed have been favorably compared to that of Charlemagne.[21] Islam acquired a larger empire than either Alexander or Rome, and did it in decades versus Rome's centuries. Many Christians defected to Islam, but no great defections occurred from Islam to Christianity. Islam rescued Europe from the intellectual blight of the Dark Ages. It lay stagnant after its early successes for 500 years but now is exhibiting a rejuvenation emanating apparently from contacts with the West. The two faiths have much in common: they emerged from Judaism, both are monotheistic (particularly Islam), and together their adherents constitute about 46 percentage of the world's population.

Mohammed built his doctrine of five "pillars" embracing belief in the compassionate Allah (God), prayers, fasting, alms-giving, and pilgrimage to the holy city of Mecca. The creed called for the sharing of wealth, prohibition of the killing of female infants, ban against gambling and commercial interest, prohibition against use of alcoholic beverages, regulation of polygamy and divorce, and treatment of all men as equals.

Righteousness constitutes a clearly expressed belief in Allah, his prophet Mohammed, his angels, the Koran, and recitation of the creed and practice of the rites. All believe in a coming Messiah (Mahdi) who will destroy all infidels and inaugurate a peaceful millenium with final judgment in the Valley of Gehenna. Man is held to be born free of sin. The greatest spiritual value is faith in Allah and the creed. Mohammed himself never claimed to be more than a man selected by Allah to bring a saving message to the world.

> *Scholium 9:* The response of mankind to consciousness of the numinous has taken the form of various characteristic patterns of thought and practice emergent from the respective sociocultural milieux and expressed as religious phenomena.

General principles

There are now eleven distinct religious systems which have lived for over 1,000 years:

Southern Asia (India)—Hinduism, Jainism, Buddhism, Sikhism;
Eastern Asia (China, Japan)—Confucianism, Taoism, Shinto, Zen;
Western Asia (Persia, Palestine, Arabia)—Zoroastrianism, Judaism, Christianity, Islam.

All the other continents have produced religions, but none have survived. Only those have survived which have possessed a canon of sacred scriptures revered as depositories of saving truth. Every religion was founded by personal contact of the founders with the divine. Man discovered by experience that religion has a biological value in that it facilitated his adjustment to the dictates of nature. Man has sought harmony with an unseen order whose power is felt in the phenomena of the numinous (the awe-inspiring and fascinating mystery of nature). His response has been colored by his cultural setting. The following principles are held by all:

1. A reality or supreme power with which man can commune happily.
2. An immortal soul amenable to rebirth to a higher plane.
3. Virtues of love and selflessness enhanced by suffering.
4. Condemnation of self-centeredness.
5. Moral quality enhanced by various routes.
6. Salvation attainable as triumph over secularity through divine assistance.

7. Societal harmonious relations enhanced by righteousness and altruism.
8. Spiritual dynamic that underlies socioculture.
9. After-death reward for virtue and punishment for evil works.
10. Nature as a vehicle created by deity within which man is obligated to develop his mind and moral nature.

The spiritual energy and insights that motivated and inspired the founders and early votaries gradually have become obfuscated by rising secularity and have been replaced by increasing formulation of creeds, doctrines, behavioral regimentation, and physical accouterments to worship.

> *Scholium 10:* The great world religions have formulated a consensus of common principles for expressing man's ultimate concern observed to be similar worldwide.

MAN'S QUEST

Self actualization

Although man has been developing his thinking and creative powers since prehistoric times, its formal expression suddenly burst into spectacular splendor around 500 B.C. in the expression of the ancient Greek civilization. Their philosophers held that the unassisted reason was infallible and that genuine virtue arose from knowledge as undemonstrable insight, vouchsafed only to the intellectual elite. All this was closed to the vulgar masses.[22] (Howbeit, this alleged infallibility led to the conflicting schools, one of which held that ideas constituted the basis of reality, whereas the other held that atoms and the void were basic).

The Hebrew Bible extolled the value of the individual man, and the Baconian-Cartesian view of reason made possible an egalitarian or humanitarian concept of reason's role. Growing out of the scholarly insight of mediaeval philosophers, man recognized that there is cosmic order, a sort of cosmic rationality, which can be discovered, initiated by the Stoics and passed on into the European mentality from the orderly, lucid, logical developments of Roman law.[23] Copernicus-Vesalium-Galileo-Newton blazed the way to the development of the empirical methodology of scientific research. Man, impelled to improve on the accomplishments of preceding generations, has learned so much about himself and his environment that he is on the threshold of acquiring the power to shape the course of his own development through micromolecular manipulation and environmental control.

Increasing liberty and freedom in thinking are facilitating his understanding of the factors that enhance his selfhood—his values as expressed in his ultimate concern. To do this to his satisfaction, he found that repressive measures engendered frustration, resentment, and tension, resulting sooner or later in rebellion. One of the lessons to be learned from history is that man must be able to gratify his need for self-expression.[24] Repressive denial of these have engendered degradation, social unrest, and threat of war. So freedom is biologically based.

Becoming

The effort "to make sense" out of nature's behavior led to adventures in the practice of magic and the occult arts, as we have seen earlier, and then on to more refined efforts to get an improved know-how in dealing with the forces of nature. Success in many fields—such as crop fertilization and agriculture, weather forecasting, curing of disease—acted as a spiritual goad, driving man on to further explorations into unknown fields seeking some clue to the vicissitudes of living. He felt the beckoning of some sort of cosmic force. This hunt for deeper insight into truth fostered the meditations of philosophers, the works of artists, the researches of scientists, all bespeaking the universality in time and space that has been motivating man to seek more knowledge and control of nature. All this brings the joy of achievement but not the satisfaction of attainment. The advance into "becoming" goes on.

Moral values

Since biologic needs have been observed to motivate organismic behavior, and this in turn has underlain human behavior as history, then history is seen as expressive of the operation of natural law. In other words, history emerges from cosmic process. Since our universe functions coherently with harmony among its parts, then in physical science we see this harmony expressed as natural law, in biology it becomes cooperation, in societal relations it is manifested as love, altruism, selflessness epitomized as the Golden Rule. This principle is attested by the universal practice of international marauders (commonly known as "the great") in excusing their actions as based on some altruistic claim of rescuing a people from the oppression of tyrants (as the Chinese war lords did), or on "the white man's burden," or "making the world safe for democracy," or "rescue from imperialist colonialism."

Faith. Faith is described as the forward thrust of being. It bespeaks a conviction that some present and/or projected circumstance possesses elements of reality that transcend sensory perception with an importance to the person that warrants his commitment to its realization. One great example in history is the faith of the Jews in their covenant with their Yahweh to sustain them, shown earlier in this chapter.

✓ *Hope.* The end of faith is hope. The expectancy from anticipation of some desirable denouement acts as an inspiration and stimulation to the spirit and vitality to the body. For example, expectancy of the early return of Jesus strengthened the stamina of the early Christians. The phenomenal march of scientific research is stimulated and sustained by the expectancy of the discovery of new insights.

Love. The longevity of the religions expresses a characteristic that man values, hence the permanence of religious practice. They all emphasize love as an essential characteristic. The summary of the deliberations of the conference of the Research Society on Creative Altruism[25] held that "union through love is the ultimate value." What was "new" was the fact that such a wide spectrum of scholarly disciplines should have led to this one conclusion each independent of the others.

International morality. Man has been advancing toward a world culture. There are well developed systems for a universal ethos of law and order, as for example, the Hague Court, the late League of Nations, and now the United Nations, with the several regional organizations. International ethos is expressed in the Four Freedoms, and the Rights of man. Science, art, music, entertainment, and the cooperation of the geophysical year, all speak an international language as shown in the world of UNESCO. The philosophic outlook of both East and West are not nearly as much opposed basically as their sociocultural expression would seem to indicate: at the Honolulu conference several years ago, ten out of thirteen areas of agreement were voiced by the forty-seven representative philosophers from America, Ceylon, China, England, India, and Japan.[26] The disagreements lay in their conceptualization of Reality and in the separateness of the theoretical from the practical aspects of knowledge.

Scholium 11: History is the expression of man's quest in self-fulfillment through fostering and expanding comprehension of cosmic process.

REVELATION

Revelation in the classical sense has been understood to be insight that was given to persons who felt themselves visited in some special way by divinity. They report that they "heard the voice of the Lord," that they saw enlightening visions, that they encountered deity in a unique way. Many of these insights were written down as sacred scriptures and divinely guaranteed dogma—"the faith which was once delivered unto the saints."—Epistle of Jude 3).

Revelation nowadays is an appreciative response to the totality of a person's existential awareness.[27] The meanings of earlier events are clarified as successive ones unfold in bringing broader perspectives as increased knowledge. In addition, there is an increased knowledge that comes through the effects of art and from religious experience itself.

Even the spiritual value of suffering is recognized in non-Judeo-Christian religion: "[Zeus] who showed men the way of wisdom gave them the law that man must learn by suffering."—Aeschylus: *Agamemnon* II, 176-8.[28] Plato, Aristotle, and the Stoics conceived of God from the character of nature and man. Astral theology borrowed from Babylonia proclaimed the lofty monotheism of the Greek poet Cleanthes who wrote in Macedonia about 275 B.C.:

> From Zeus let us begin; him never
>   do we men pass by in silence.
>   Full of Zeus are all the streets
>   and all the market-places of men;
>   full is the sea, and full the
>   heavens; sure at every turn we
>   have need of Zeus.
> For we too are his offspring, and he
>   out of his kindness, gives to men
> Auspicious omens, and doth make the
>   world to work,
> Reminding men to earn their bread. . .[29]

Revelation is the religious name for that process which is essentially the growth of reason in history.[30] It is the discovery of a rational pattern to life. It is still unfolding.

> *Scholium 12:* Revelation is the enlightenment that emerges as man reflects on the outcome of previous experiences.

In the next chapter, we continue our study of man's complexification by the study of the increasing development of his soul-function as expressed in Aesthetics.

SCHOLIA AND PERCEPTS FROM HISTORIOGRAPHY

Nature of History

Scholium 1: History as the record of human behavior expresses organismic inclinations.

Percept: Organismic inclinations.

Scholium 2: By piecing together memories of past experiences, man constructed a pattern of knowledge of wholeness giving hope for the solution of further problems.

Percept: Myths as patterned experience.

Scholium 3: From crude beginnings in magic and ritual for supernatural help in overcoming the adversities of living, man slowly introduced moral and ethical ideas into his religious concern.

Percept: Spiritual ideas as religious sequallae.

Progressive Aspects

Scholium 4: Religious thinking has exerted a spiritual dynamic that has underlain sociocultural vitality.

Percept: Sociocultural vitality from religion.

Scholium 5: Change is inevitable and indicates progress when there is increase in spiritual sensitivity and cosmic consciousness.

Percept: Progress in spirituality.

Turning Points in History

Scholium 6: In a relatively short chronological span, a widely scattered vision of man arose, holding him morally responsible to transcendent being and revolutionizing his personal and societal relationships.

Percept: Worldwide outburst of moral responsibility.

Scholium 7: The career of Jesus Christ revolutionized man's outlook by enabling him to rise above his pawn-like status to be an individual of concern to almighty deity.

Percept: Career of Jesus as vitalizing.

Scholium 8: Man's age-long struggle toward freedom has been advanced by the influence of the principles promulgated by Christianity.

Percept: Freedom advanced by religion.

Religion in History

Scholium 9: The response of mankind to consciousness of the numinous has taken the form of various characteristic patterns of thought and practice emergent from the respective sociocultural milieux and expressed as religious phenomena.

Percept: Diverse religions.

Scholium 10: The great world religions have formulated a consensus of common principles for expressing man's ultimate concern observed to be similar worldwide.

Percept: Religious unity in diversity.

Man's Quest

Scholium 11: History is the expression of man's quest in self-fulfillment through fostering and expanding comprehension of cosmic process.

Percept: Quest for enlarged self.

Revelation

Scholium 12: Revelation is the enlightenment that emerges as man reflects on the outcome of previous experiences.

Percept: Revelation as enlightened meaning.

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CHAPTER VIII. OBSERVED PHENOMENA IN AESTHETICS

AESTHETICS AS EXPERIENCE

THE basic virtues of truth, goodness, and beauty enunciated and transmitted to us by the Greeks have been described as the supreme three catagories of value, constantly interwoven in human experience as the true, the good, the beautiful.[1] Some philosophers add holiness embracing wholeness, so making the quartet of truth, beauty, goodness, and holiness.[2] These are described as the collective fruits of metaphysics, theology, and aesthetics, all connected in conscious linkage with the whole universe.

These expressions of man have been observed to a degree in animal life.[3] Chimpanzees showed pleasure from the discovery of a new ingenius manipulation, and when of child-age repeated in play the use of a tool that it had just invented. Apes and babies show exhilaration when solving a problem. Invention and discovery are pleasurable. They bring experience to bear in solving problems. Life itself is the ordering of disorder,[4] the maintenance of a steady state of form and structure in a changing flux. An organized pattern of sights and sounds as in painting and music are pleasurable experiences of man as well as of the lower orders of life. They all stimulate a feeling of identity with a supraconscious force of orderliness and patterned harmony.[5]

Nature's patterning is inherent and primary. Order and harmony are demonstrably there. The mind perceives it because it is a part of that order.[6] Contemplation of it brings pleasure. Beauty is "pleasure objectified." Aesthetic appreciation is described as that unique feeling of satisfaction that comes when the mind receives pleasure by beholding any relation that connects two or more visual or auditory elements in our environment.[7] Aesthetic experience resides in two categories of vision: sensuous and spiritual, form and feeling, or substance and spirit. The form expresses the feeling. In aesthetic appreciation, both aspects interpenetrate.

> *Scholium 1:* Aesthetics is experienced as a pleasurable response of mind to a harmonious integration of rhythmic or symmetrical pattern of sight or mind.

AESTHETICS AS COMMUNICATION

Art as medium

An area of "valid human experience" can be described and objectified by a creative artist. Art is also described as the introduction of order into emotional experience. In a disciplined art, the observer is awakened to a transcendent experience of some truth—although the ideas in the mind of one observer may differ to a degree from those of the artist or other observers, depending on their past experience.

Science itself uses a technique of the artist, namely intuition and imagination. The scientific method covers up the path of the artistic element. Both disciplines use imagination. The scientist seeks understanding by analysis and synthesis to wholes. The aestheticist seeks inspiration by abstraction of principles and patterning them into wholes. When this artistic expression seeks to link all feeling and thinking to meanings that lie beyond momentary sensation, to the laws of world order, beauty, worth, spiritual activities, destiny of mankind, the Supreme Mind or Reality, it is called "cosmic art" blending metaphysics, theology, and aesthetics. Art shows us harmonies beyond the scope of objective description.

> *Scholium 2:* Art, like science, uses the imagination to create perceptual images as symbols of imponderable ideas.

Ethnology

Creation of works of beauty and the expression of aesthetic pleasure have been shown by the poorest tribes of men. The absence of slovenly work is noteworthy in natives' households. It arises from the technical pursuits, and takes a style from forms developed over the world by skilled workmen. These get aesthetic pleasure out of superior craftmanship. It may take the form of language, song, music, drama, dance just as well as painting sculpture and ornamentation, all to express conscious processes in a manner that may be perceived by the sense organs.

These ancient cultures exhibited ornamental art as symmetry, rhythm, and form; those of poetry, music, and dance as rhythm. Our aesthetic feeling is distinguished from that of primitives only in the greater spread of aesthetic manifestations. In their mental make-up, they were as gifted as we are.

> *Scholium 3:* Primitive prehistoric man manifested aesthetic pleasure in expert craftmanship, ornamentation, and cave paintings.

Character of art

Art is described as the appearance of things in their immediate, direct, full richness of being. It expresses a depth of intuitive awareness that goes deeper than words can describe. For example, the color blue can be known only intuitively but never by description. Aesthetics is the directly felt, unifying completion of the process of emotional perception. Such a feeling is possible only where there is a material object involved; aesthetics is not a pure abstraction.

The expression of behavior or cultural manner is "style."[8] Patterns tend to change toward opposites. The arts express dynamic forces endeavoring to symbolize goals.

> *Scholium 4:* Art is the qualitative direct expression of dynamic forces giving style or cultural patterns to society.

Modes of aesthetic expression

There is no clear evidence of any inherent order of succession in the development of the several cultural disciplines. In general, religion precedes the development of art, science, philosophy. These latter disciplines flourish as they emancipate themselves from religion. Religion initiated their start but tends to cramp their development as long as they remain tied to the religious emphasis.

Expressive arts. Literature and art have excellently reflected man's unhappy condition and have brought to light many aspects of his deepest thinking and his highest aspirations—but no suggestion of a plan or means for their fulfillment has been expressed. They describe what *is* excellently, but propose no remedy except Utopias.[9]

Language has been likened to an iceberg: the words and gestures are immediately observed but the vastly greater part is below the surface. Man's ideas undergo several translations from one medium into another as they pass from the sending self to the receiving self, thereby distorting meanings.

Mathematics is a system of expression dealing with abstractions—the relation between concepts that are emancipated from particular situations, e.g. use of figures or letters for numbers. It rests on conclusions from propositions that are only assumed to be true. This form of deductive logic links reason and our world, revealing form and organization as characteristics of reality. This relation is so cogent that it has made possible many discoveries (as predicted). It is the structure, not the content, that has been mathematized. Tribute to the aesthetic aspect of mathematical logic is given by Margenau when he lists "elegance" as one of the characteristics of the "rules of correspondence" that link percepts with constructs.

Fine arts. The criteria of the beautiful in Western art and thought stem from Egyptian art on to early Greek art, then European, and so on to post-Columbus America. Pythagoras conceptualized cosmic harmony as based on its structure by numbers. Supreme happiness was found in contemplation of the perfect order of these mathematical relationships.

The relation between the parts of the human body furnished a model of perfect symmetry. The correspondence in nature was the modulated progression of man-temple-universe, expressing *analogia*. The idea became the dominant characteristic of classical Western art.

So aesthetics, through intuition at emotional depths, confirms the correlations of sensory awareness that the universe is an orderly, integrated, harmoniously operating whole. Intuition has cognitive value.

Scholium 5: Aesthetics expresses reality symbolically in the expressive arts, the fine arts, and intuition.

AESTHETICS AS KNOWLEDGE

Word meanings

Truth as apprehended by the unconscious psyche finds its natural expression in poetry, in contradistinction to truth as apprehended by the intellect, which finds its natural expression in science. Both disciplines have only the one vocabulary of language with words whose meanings would be supposed to be likewise identical. But this is not so since the two disciplines have different outlooks. One is permanent as Being; the other is changing as Becoming. Poetry speaks the universal language of relatively permanent human nature which does not seem to be different in modern civilized man from what it was in early man. Aeschylus is as understood as Shakespeare. But Archimedes would not understand Einstein. The poet is discovering truth through verse. What the poet calls "The Everlasting Arms" is what the scientist calls "the integrity of the universe."

Scholium 6: Lexicographic word meanings are the same in poetry as in science, but as vehicles of truth they connote quite different ideas.

Sensory knowledge (phenomenal)

The conscious process of knowledge involves the knower, the knowing process, and the known. Knowledge itself is characterized as follows:[10]

1. Coercive—possessive of a character of its own, "real" in some sense.
2. Orderly—possessive of a structure that is coherent with all other known objects which we know as the world of nature.
3. Publicity—potentially available for all other competent persons to apprehend.

These criteria may be known as correspondence, coherence, communicability. The world is real to the extent that human beings perceive it without sensory apparatus, but it may be quite different in reality. By our imagination we construct hypotheses and theories which explain its behavior—as we see it.

> *Scholium 7:* The phenomenal world of structure is known through the senses and exhibits properties that are characteristic as identifiable, as structurally coherent with other such entities, and publicly apprehensible by anybody.

Suprasensory knowledge (noumenal)

Man's noumenal thought cannot be expressed in exact formulations by the methods of sensory appeal. Recourse is had to poetic-symbolic language, images, myths, art. However, it is a dependable source of knowledge as shown by its coerciveness, orderliness, and publicity. For example, beauty is aesthetically coercive to the man of taste, because it possesses a pattern which distinguishes it and attracts the attention of others.

This is the realm of cognition that embraces the disciplines of aesthetics, philosophy, religion, and the humanities. It is an inner conviction that transcends the power of words to describe. Yet however subjective such knowledge may be, there are signs by which other persons "in the know" can recognize the situation, e.g. the pleasure of a dog on seeing his master or the pain of somebody else's toothache.

> *Scholium 8:* The nuomenal world exhibits dependable knowledge by the reason of the compliance of its cognitive events with the criteria of the phenomenal world.

Intuition

aha experience

When the aesthetic sense thinks simultaneously of the immediate and the distant, the specific and the general, so that the solution of an immediate problem involves a re-integration of all that a person has experienced, he may experience understanding as a sudden flash of insight. It is transcendent to all sensory perception, and breaks into the consciousness with a vividness that imparts cognitive consciousness. It ranges in intensity from the speculative "leaps" of ordinary postulation (in going from the P-field to the C-plane) to overwhelming certitude in the ecstatic vision of the mystic experience (see next chapter).

Since Pythagoras, Plato, and the Stoics developed their great philosophic systems ages before the enormous assemblage of current factual knowledge was available, the transcendent character of this knowledge reveals its supraconscious origin.

> *Scholium 9:* Cognitive insight, transcendent to sensory and rational processes, often comes to the thinking person as a sudden flash of clarifying vision.

AESTHETIC OBJECTIVITY

Beauty is objectively real to cultivated taste, as shown above. Critics agree in their judgments on works of art. However, some persons call a work beautiful which others call ugly. So there seem to be aspects of aesthetics that are influenced by a person's taste and spiritual heritage. For example, jazz is good music for some persons (and for savages) but not for the heirs of Bach and Beethoven.

The objectivity of aesthetics is further attested by the unique service it has rendered to advance civilization. Science and art are the consciously pursued works of science and beauty. The phenomena reported earlier on organization as a basic factor in the processes of nature are seen here in aesthetics as the underlying principle expressed as harmony and patterned wholeness. The essence of aesthetics and material nature tie into a single unitary aspect of reality. This establishes aesthetics as an authentic manifestation of human experience, bridging the gap between the biologically-conscious level of life to that of the supraconscious, connecting each with the other.

> *Scholium 10:* Aesthetics as expressive of the virtues is found to have objective being, measurable and testable, thus emerging as part of nature.

AESTHETIC CORRELATION WITH SPIRITUALITY

Nature of spirit

Spirit, as discussed earlier, expresses that area of psychic functioning from which deep-seated urgencies rise from the depths of the unconscious with a strong emotional tinge. Thalamus based, emotionally charged, instinctual motivation may be called "heart knowledge" in contrast to the rational, sensorily induced, analytical intellection, called "head knowledge" coming through the cerebral cortex. The spirit manifests something deep in man that calls for harmony with the wider orderliness and beauty in the universe. The appreciation of beauty is the biological evidence of the conformity between the soul and nature, providing the basis for faith in the supremacy of the good. Honor, truthfulness, and cleanliness are virtues whose absence causes disgust. So they are aesthetic, expressing mentality at a high level of psychic appreciation.

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> *Scholium 11:* Spirit is the level of cortex-functioning mind expressing sensitiveness to the cosmic principle of virtue.

Art experience in Being-Becoming

The aesthetic sense is described by Schwartz as expressing a person's imagination, taste, and integrity—his sense of love and truth, an experience in being.[11] It produces a feeling of being more intensely alive, of feeling significant, of recognizing one's capabilities. It increases sensitivity, perception, memory, and better discrimination in growth pursuits. It fosters optimism, self-confidence, courage, adaptability, stability, freedom, responsibility, with greater integration in dynamic functioning and in economy in use of time and energy. It provides unconscious awareness of situations that are too complex for the conscious mind to grasp. It facilitates discriminatory selection of essential elements in a situation. It engenders perspective in time and space interactions which any action might entail. It creates symbols that facilitate the grasping of complexities which the unconscious perceives. It translates what is perceived by all the senses into a single unified comprehension and appreciation.

> *Scholium 12:* The aesthetic sense engenders increased sensitivity to growth and development factors in self-fulfillment.

Moral correlation with aesthetic experience

The aesthetic and the ethical dimensions of conduct are closely related.[12] This is commonly recognized in the idea that physical cleanliness has its aesthetic counterpart in "clean" as that is morally or intellectually desirable, and vice versa. The closeness between the ethical and the aesthetic lies in the fact that the beautiful, the true, and the good contain and are characterized by the element of order.

Schwartz found that the aesthetic sense is also the moral sense, the social sense, and the religious sense—the sense of self and being-becoming. The consciousness of self in the aesthetic meaning reveals what the person is like. It guides him to healthy experiences. When they are right, the person senses movement toward integration, and feels wholeness and satisfaction; but when wrong, he experiences discomfort ranging to intense pain.[13]

Along the same line, Piper writes[14] that art bridges the gap between feeling and thinking. It is indispensable for identification, expression, enlargement, and perpetuation of the important human emotions. This is done by poetry, literary fiction, drama, painting, sculpture, music, dance. They complement truth values by humanizing science and enriching articulation. They are the universal language of the emotions. Art expresses the innermost drives for man's orientation to the universe. It reflects active spiritual forces as cast into symbolic images.

The intimate relation between aesthetics and morals expresses the immediate participation of the knowing subject with the spiritual reality. In the presence of truth, beauty, and goodness, the person feels lifted into a region of expansion of spirit. The mystical ecstasy that is engendered by viewing reflectively a piece of cosmic art is matched by the "sense of the ultimate" that Einstein writes as characterizing the "genuine scientist."[15] Aesthetics is the bridge between the conscious and the supraconscious worlds.

> *Scholium 13:* The development of aesthetic feeling fosters the virtues of truth, beauty, and goodness whose realization in being-becoming expands and deepens self development.

SPIRITUALITY CORRELATING WITH RELIGIOUS EXPERIENCE

Characteristics of spiritual experience

Spiritual apprehension is explained by Radhakrishnan as the participation of the knowing subject in the spiritual reality.[16] It is an awareness of Being itself, interpenetrating the order of this world. This direct experience is reported by persons in all races and religions.

Many cases are known in which original thinkers and creative artists report that a "creative hunch" led them into new areas of perception. It seemed to come from an unconscious source describable only in symbols. It

intuition
intimation

seems to thrust itself at man. It bursts into his consciousness suddenly as an illuminating flash of insight. Man becomes conscious of having *received* a revelation as if cosmic pattern or process had succeeded in revealing itself.

Scholium 14: The cultivation of the aesthetic consciousness sensitizes the psyche to phenomena from the supraconscious world, entailing intuitive insight and creative vision.

Potency for creativity

The longest and widest fame accorded to human beings has been won by the founders of the higher religions. Today they hold the allegiance of near half the world's population. These religio-philosophies are the motivation of almost half the motifs of artistic expression. Creativity has been described as a reaching for reality,[17] appearing in material cultures first in religion and then in the other disciplines, as discussed earlier. Again, to repeat Toynbee, religion has been the great creative force that has transformed dying cultures into new florescence through its spiritual dynamic.[18] Religion is cited by Whitehead as the one element in human experience which persistently shows an upward trend.[19]

Scholium 15: The effect of spiritual forces organized into philosophic and religious systems have exerted more stabilizing and creative orderliness in civilization than has any other discipline.

Spirituality as emergent into religion

Aesthetic experience may expand the spiritual life from the minimum of delight in a pleasing pattern to its culmination in man's most exalted experience of mystic union with reality. Two steps are recognized in this transition: first, meditation on the wonder and mystery when the aesthetic contemplation has passed, and second, attribution of this emotion to a "beauty-loving God."

The religious sense is described as an emotive response (cognitively flavored) that relates the person to all of life, and to image a higher more ideal form of life.[20] This sense is a datum of experience. Both art and religion make similar demands on the realms of thinking, feeling, and willing. Both express exuberant abundance of life, and paradoxically, of repose, peace, and satisfaction. Art and religion belong together by virtue of their identities of origin, subject matter, and inner experience.

The emotions expand into aesthetic experience. Aesthetic experience expands into spirituality. Spirituality expands into religious "experience."

This manifests itself in *rapport* (union) with cosmic reality.

> *Scholium 16:* The whole man's insatiable quest for contacting the source of supraconscious power becomes religious when organized into a coherent program of faith and practice.

As we proceed along the spectrum of man's existential awareness, we encounter an extension of his aesthetic sensitivity (spirituality) revealed as the phenomena of mysticism, studied in the next chapter.

SCHOLIA AND PERCEPTS FROM AESTHETICS

Aesthetics As Experience

Scholium 1: Aesthetics is experienced as a pleasurable response of mind to a harmonious integration of rhythmic or symmetrical pattern of sight or mind.

Percept: Aesthetics as pleasurable perception.

Aesthetics As Communication

Scholium 2: Art, like science, uses the imagination to create perceptual images as symbols of imponderable ideas.

Percept: Symbols as tools.

Scholium 3: Primitive prehistoric man manifested aesthetic pleasure in expert craftmanship, ornamentation, and cave paintings.

Percept: Primitive aesthetic expression.

Scholium 4: Art is the qualitative direct expression of dynamic forces giving style or cultural patterns to society.

Percept: Art expression of cultural style.

Scholium 5: Aesthetics expresses reality symbolically in the expressive arts, the fine arts, and intuition.

Percept: Aesthetics expresses reality in symbols.

Aesthetics As Knowledge

Scholium 6: Lexicographic word meanings are the same in poetry as in science, but as vehicles of truth they connote quite different ideas.

Percept: Differences in word meanings.

Scholium 7: The phenomenal world of structure is known through the senses and exhibits properties that are characteristic as identifiable, as structurally coherent with other such entities, and publicly apprehensible by anybody.

Percept: Phenomenal entities sensually known.

Scholium 8: The noumenal world exhibits dependable knowledge by reason of the compliance of its cognitive events with the phenomenal world.

Percept: Noumenal entities objectively known.

Scholium 9: Cognitive insight, transcendent to sensory and rational processes, often comes to the thinking person as a sudden flash of clarifying vision.

Percept: Flash of cognitive insight.

Aesthetic Objectivity

Scholium 10: Aesthetics as expressive of the virtues is found to have objective being, measurable and testable, thus emerging as part of nature.

Percept: Aesthetics as natural behavior.

Aesthetic Correlation with Spirituality

Scholium 11: Spirit is the level of cortex-functioning mind expressing sensitiveness to the cosmic principle of virtue.

Percept: Spirit as suprasensory consciousness.

Scholium 12: The aesthetic sense engenders increased sensitivity to growth and developmental factors in self-fulfillment.

Percept: Aesthetic sense as growth stimulus.

Scholium 13: The development of aesthetic feeling fosters the virtues of truth, beauty, and goodness whose realization in being-becoming expands and deepens self development

Percept: Aesthetics as moral stimulus.

Spirituality Correlating with Religious Experience

Scholium 14: The cultivation of the aesthetic consciousness sensitizes the psyche to phenomena from the supraconscious world, entailing intuitive insight and creative vision.

Percept: Aesthetics in suprasensory development.

Scholium 15: The effect of spiritual forces organized into philosophic and religious systems have exerted more stabilizing and creative orderliness in civilization than has any other discipline.

Percept: Suprasensory forces as potent vitality.

Scholium 16: The whole man's insatiable quest for contacting the source of supraconscious power becomes religious when organized into a coherent program of faith and practice.

Percept: Quest for suprasensory power as religious motivation.

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CHAPTER IX. OBSERVED PHENOMENA IN MYSTICISM

GROUND OF MYSTICISM

The subject of mysticism (theopathy) deals with a category of phenomena which generally have not received much sympathetic consideration. It lies on the borderline of the bizarre, the mysterious, the visionary, even the fanatical. Much of it is popularly known in connection with witchcraft, necromancy, crystal gazing, astrology, alchemy, and other occult practices. Such associations have given it a bad name—as chemistry formerly had in its alchemical connections, astronomy with astrology, and now psychology with its parapsychology.

Apologetics

Our factual knowledge is based on records of what mystics have said and done, on historical relationships between waves or peaks of mystic activity, on known relations between mysticism and other human artifacts, and on personal experience, subjective though this may be but as convincing as ecstatic exaltation, or a toothache, to the person.

Particularly impressive is the fact that the founders of the great religions—Zoroaster, Moses, Gautama, Lao Tse, Jesus, Mohammed—all were mystics. These men were geniuses. They founded movements that have outgrown and outlasted all other institutions. They were characterized by individuality, by a tendency to independent thought and action, and in the West particularly to run free of sacerdotalism, displaying a spirit of reform, often of revolt, to stereotyped, formal doctrines and practices.

Scholium 1: Mysticism is a category of experience reported by independently-thinking geniuses in inaugurating religions.

Basic character

Empirically in the East man discovered that by following various disciplines of self-control, meditation, and cultivation of intense spirituality, he could lose himself in an exuberant joy that is ecstatically experienced in detachment from secular sensory things. In this depersonalized state of selfless rapture, all the tension, anxiety, and discordant elements of the psychic and external world cease. Bliss is overwhelmingly convincing in its soul-satisfying reality.

This reality is an undifferentiated unity, with no anthropomorphic features. It is exalted over all the power of speech to describe. It is unnameable, indescribable, featureless, with no personal, ethical, or aesthetic predicates. The mystic recognizes it as the Highest Good, the Infinite Value, the Super-beautiful. It has been called "Nirvana," "Tao," the "Abyss" "Silence," "Void."

The classic criteria of the mystic experience have been formulated:

1. Ineffability–indescribable
2. Noetic quality–insight into truth "unplumbed by the discursive intellect," authoritative for after-times.
3. Transiency–usually half an hour, rarely an hour.
4. Passivity–the feeling of being in the grasp of a superior power.[1]

Underhill writes that it is the art of establishing conscious relation with the Absolute.[2]

Scholium 2: Mysticism is the art of establishing union as psychic laison with transcendental cosmic reality.

UNIVERSALITY OF MYSTICISM

Primitive origins

Primitive peoples believed that the spirits of the departed or even the lower air-spirits and the objects of nature had their individual power. These could be contacted only by those who had developed power in this art. Such an agent was called a "shaman." The aspirant to such service inherited what was known, and then had to undergo long training to induce the convulsions, invoke the exorcisms, deliver the incantations, and indulge in the wierd ceremonies of dance, gymnastics, and music to contact the spirit. Such practices were held to identify the shaman and the spirit, who then became subject to the shaman's power. The latter's senses under such circumstances become so numb that he could perform many feats which were impossible to the ordinary person, as for example, swallow knives, glass, and fire, walking unscathed on red-hot stones. Intoxication was induced by American Indians by smoking strong tobacco; Mexican Indians used mescalin; Negroes in Africa used hemp leaves; Turks and other Orientals used the hemp poison hashish. None of these rose higher than the respective states of ecstasy.

> *Scholium 3:* Under the numbing influences of certain practices, the exorcist could bring into subjection the evil spirits or force them to correct their harmful acts.

Ethnological expression

Mysticism possesses many elements in common, as it is expressed in the East-West, respectively. The East thinks of reality as a whole. Growth takes place by increment of virtue. It is seldom revolutionary and tends to sacerdotalism. The West seeks to discover general principles and universal laws. Like the East, its mysticism calls for personal moral endeavor. Growth occurs by reconstruction. It is characterized by the spirit of religious reform, generally savoring of revolt.

With rising culture, speculative mysticism developed philosophies of reality and peaks of insight in religious life. The mystics themselves sought to find spiritual law in the natural world, but eventually when the spiritual inspiration dried up, they fell into the pursuit of necromancy and other occultisms. From this situation, the nature mystic sought to find God in nature itself. This practice developed in many separate parts of the world, each with its own ethnic character. The mystery cults, largely Oriental in character, sought to raise human nature into union with the divine nature. Plotinus, a non-Christian, influenced the early Church with his neo-Platonism, holding that the world is an idea in the divine mind and all parts held together by the Logos—"law" as a vital force. Augustine taught that beauty comes from the highest beauty, God, and that man could ascend to God by seven stages, of which the last three were purgation, illumination, and union. Mysticism rose all through Christendom with various minor differences.[3] The Romantic Movement brought a nature mysticism represented by the poets Wordsworth, Browning, Shelley, and later Tennyson.

In the Jewish community, mysticism is expressed in post-Biblical times bv the Kabbalah (a spiritualization of the tenets of the law—the Torah), by the Markabah (seeking the vision of God's throne-chariot), by the later Zohar system (a gnosis based on the pursuit of the virtues of love, purity, chastity, penitence, prayer, and study of the Torah), and by Hasidism (from a devout personal experience with God).[4]

Chinese mysticism was expressed under the leadership of Lao Tzu, emphasizing spiritualized nature whereby the soul becomes one with the Way (Tao). Indian mysticism emphasized meditation and renunciation in seeking union with Brahman through overcoming all personal desire. Persian mysticism is expressed by the sect of the Sufis, a Mohammedan group that exercises a morality like that of Christianity, but with some elements of Shamanism.[5] Grecian mysteries are represented by the cults of Dionysius (Orpheus), where the votary secured union with the god through drunken orgies; Pythagoras, who held that the soul could reunite with the divine through consecration and purification; Plato, who taught that the soul could think itself toward ever higher levels by the paths of beauty and love; and Philo, the Alexandrian Jew, who sought to reconcile the teachings of Moses with those of Plato, holding that the Logos was the Wisdom of God and the mediator between an unapproachable, self-conscious, reasoning God and finite man.[6]

All mystics agree in rejecting the road of deeds alone for achieving mystical knowledge. They emphasize the pursuit of love, self-abnegation, patience, knowledge, moral excellence, all simplified as purification, illumination, and union.

The use of drugs as agents for the expansion of consciousness has received current emphasis in the use of mescalin. Other important ones are LSD and psilocybin.[7] Several of these psychedelic (consciousness-expanding) drugs have been synthesized or extracted chemically with special reference to their property of increasing mystical ecstacy and religious potentialities. Huxley's thesis that this is a surrogate for religion is answered by Zaehner, discussed later in this chapter.

Scholium 4: Mysticism possesses many qualities in common among widely scattered mankind.

Historical correlation

The course of mysticism in Europe during the Christian period shows a chronological relationship to history and culture.[8] Peaks of mystic expression arrive immediately after the heights of a culture have been reached and have begun to decline, as shown in the following table:

Table IV. *Mysticism in History*

Secular Civilization	*Mysticism*
Classical period: 1st–2nd centuries	Church Fathers: 3rd–5th centuries
13th century: Mediaeval religion, art, philosophy, saints, chivalry, cathedrals	14th–15th centuries: Many great contemplatives as Francis, Dante, Bonaventura, Aquinas, Eckhart
15th–16th centuries: climaxed in the Renaissance	16th–17th centuries: St. Teresa, Loyola, St. John-of-the-Cross, Boehme, and the Platonists.

The long ladders of ascent to divine union by graduated scales of virtues and faculties disappeared over the centuries. Eckhart's idea of the immanence of God in the spark (ground) of the soul makes possible the incarnation of Christ in the soul with no intermediaries necessary, a strong precursor of the Reformation, undermining sacredotalism. But it was crushed in the Counter-Reformation. Recession of independent religious thinking by both Roman Catholic and Protestant ecclesiasticism again retarded the flow of advanced thinking. Nature mysticism, as the Romantic Movement, arose out of this situation.

> *Scholium 5:* Mysticism as an expression of individualist thinking undermined mediaeval sacerdotalism and paved the way for the Reformation and the Romantic Movement, with independent thinking and personalist emphasis.

MYSTICISM AS KNOWLEDGE

Intuition

Mysticism embraces a kind of knowing called "gnosis." It is characterized as a voluntary, indescribable harmony with the deepest reality. It is the ability to recognize absolute values through inspiration, a spiritual insight, a psychic sensibility. In this sense, gnosis and mysticism are equivalent, revealing a realm that stands above sensory experience.

Gnosis is known in everyday discourse as intuition. Without intuition, there would be no scientific knowledge; intuitive insight imparts rationality to what otherwise would be an irrational congeries of miscellaneous phenomena, as in an encyclopedia. Intuitional knowledge comes suddenly, often as a flash of insight. All creations in the arts are preeminently intuitional. Religious and moral creations are also overwhelmingly intuitional. Since the religions constitute one of the foremost achievements of human culture, they testify to the fundamental role of mysticism in the development of civilization and hence in the acquisition of knowledge and culture.[9]

Mysticism has progressed beyond religion as the latter is represented by formal religious organizations, attested by two components. One expresses the independent, individualistic, prophetic, un-sacerdotal, uninstitutionalized emphasis, and the other the developing insights which the mystics have proclaimed as compared with "hold the line" policy of the conventional religious outlook. It reveals growing knowledge.

Scholium 6: Mysticism recognizes values by intuitive insights, the ground of civilization and cultural artifacts.

Experiment

An experimental protocol showed by means of a ballistocardiagram that waves from a guru (Indian spiritual teacher) produced a measurable effect on the disciple while both persons were several yards apart.[10] When the guru changed from the contemplative state to the transmitting state, the graph showed a marked increase in vibrating amplitude. The graph of the disciple became intensified upon reception of the guru's waves. The two persons described their sensations "as similar to being enveloped by vibratory phenomena."

Some of the effects of the mystical experience can be induced by other methods. The characteristic sense of ease, expansion, and assurance can be secured by:

1. "oceanic feeling"—described by Maslow,[11] involving loss, or transcendence, of self by problem centering, intense concentration or sensuous experience, self-forgetfulness, or intense enjoyment of music or art.
2. physical means—wild music, breathless dancing, rapid whirling, and other frenzies.
3. drugs—e.g. alcohol, opium, tobacco, hashish, tea, coffee, marijauna, cocoa leaf, mescalin, and other psychedelic drugs.[12]

It is reported that mystical experiences triggered by psychedelic substances, are indistinguishable from those of a classical religious type.[13] A characteristic of the latter is the moral elevation imparted, whereby the person rises to a permanently higher plane of being and becoming, of character, and of behavior.[14]

Scholium 7: Mysticism describes the preternatural (inexplicable)

> experiences of seeming union with a transcendent state of being as a "cosmic consciousness."[15]

Expression

Symbolism. Suprasensory consciousness opens a new world of experience which has not developed a language of common discourse. No words have been coined that describe this area of awareness, and so symbols, figures of speech, myths, parables, and other such indirect means are used to communicate to those who have not had it through that which is already known to them. Jung held mysticism to be an aspect of experience represented in archetypal geometrical figures discussed earlier. Three great classes of symbols characterize the three principal ways in which spiritual consciousness reacts to reality:

1. divine transcendence and the idea of pilgrimage, a quest, as in Bunyan's *Pilgrim's Progress,* Dante's *Divine Comedy,* and the Sufi literary pilgrimage symbolism;
2. mutual desire and symbols of love, as in the passionate desire for divine communion that could be compared only with the closest human relation; and
3. divine immanence and symbols of transmutation showing regeneration as passion of the soul for purgation, detachment from illusory distractions, purification and the New Birth as the soul faces the unutterable perfection of the Absolute.

Religious. The great mystics of China, India, Persia, the Holy Lands, Europe began with a deep skepticism about popular and traditional religion. They matured with moral growth rather than by intellectual effort. Great mysticism has everywhere offered to replace popular religion with a new allegiance that was universal. The mystic's passion craved the sense of the Ultimate Reality, the God, Godhead, or Goodness that he intuited. Reality is held to be One—all embracive, indescribably, nameless. It is found within the self and is identical with the reality in the external world. It is apprehended by direct, unmediated acquaintance by those who cultivate a morally pure way of life.

As in mystic theology generally, St. John emphasizes the Incarnation rather than the Crucifixion as the cardinal fact of Christianity. Christ is the Way, the Light, the Door, the Bread—the avenue to the Father. St. John writes that the purpose of the Incarnation was to reveal God the Father. The mission of the Holy Spirit is to reveal the Son. St. Paul places great emphasis on the evidence of the "heart" and discounts the "wisdom of the world" as "foolishness." The Book of Hebrews deals with mysticism by the emphasis given to the importance of symbols and "promises of God" to teach spiritual truth.

Nature Mysticism. The feeling that we are greater than we know is finely expressed by the poets Wordsworth, Shelley, Byron, Spencer. In "Lines Composed Above Tintern Abbey" Wordsworth says:

> The sense sublime
> Of something far more deeply interfused,
> Whose dwelling is the light of setting suns,
> . . .and in the mind of man;
> A motion and a spirit, that impels
> All thinking things, all objects of all thoughts,
> And rolls through all things.

Similar sentiments are expressed by Lao Tzu in the *Tao Te Ching* and eight hundred years before Christ in the Indian *Upanishad,* in which this prayer is expressed:

> Let a man devote himself
> To knowledge of theee ["O Brahman Supreme"]
> Let him follow thy path
> And he shall know thee:
> All his fetters shall be loosed.

Scholium 8: The religious and non-religious worlds exhibit communion and spiritual reaction with the transcendent force that makes nature what it is.

Objectivity

The objectivity of the mystical experience, like that of any one of the other subjective states, is shown by the votary's behavior. Objectivity and subjectivity correlate in action. Objectivity can be attested in the following areas:

1. *Conviction.* The mystic is sure that he has reached his goal.
2. *Character.* The mystic experience imparts new depth and enriches the soul, all evident in the person's behavior.
3. *Correspondence.* The soul testifies that there is some kind of contact with a deeper spirit, imparting spiritual energy.
4. *Response.* A person in intense prayer feels a spiritual response.
5. *Action.* The mystic's experience frequently reveals the presence of an unknown companion.

6. *Peace.* Many mystics testify to an incomprehensible peace.
7. *Ecstasy and Trance.* An exalted state of "undifferentiated consciousness arises" like those in the high moments of joy in music, beauty, the spell of pure mathematics, aesthetic experience, and wonder.
8. *Religious expression.* The bringing of complete spiritual health.

Scholium 9: Objectivity of mystic experience is perceived in behavioral pattern and in responsible, consistent testimony.

MYSTICAL EXPERIENCE

Mystics all use the same terminology in language that expresses the deep, underlying life of mankind. Mysticism has been called the empiric basis for theology, even "experimental theology."[16] The great mystics have declared unanimously a realization "of something that is implicit in the self and in the universe." They confirm the findings of science that the universe is dynamic, a space of Becoming, a continuing creation (long before science found this out). They testify to an invasion from beyond personal consciousness and feel united in one life with the central power of being.

Various mystics express their experiences as follows:

Eckhart: "I feel as certain as that I live that nothing is as near to me as God. God is nearer to me than I am to myself."

Jacob Boehme: "In one quarter of an hour I saw and knew more than if I had many years in a university. I saw and knew the being of all things, the Byss and the Abyss."

Madam Guyon: "My spirit disenthralled, became united with and lost in God. And this was so much the case that I seemed to see and know God only, and not myself."

James Russell Lowell: "As I was speaking, the whole system (of the universe) rose up before me like a vague destiny looming from the Abyss. I never before felt the Spirit of God in me and around me. The whole room seemed to be full of God. The air seemed to waver to and fro from the presence of something, I know not what. I spoke with the calmness and clearness of a prophet."

The striking similarity of the psychic experience of Orientals and Occidentals is brought out in the following two accounts:

Sandu Sundar Singh:[17] ". . .I thought this was a false religion and tried all I could to destroy it. I was faithful to my own religion, but I could get no satisfaction or peace. . . .Three days after I burnt the Bible I. . .prayed 'O God, if there is a God, wilt thou show me the right way or I will kill myself.' . . .I was praying and pray-

> ing but got no answer. . .At 4:30 A.M. I saw something of which I had no idea at all previously. In the room where I was praying I saw a great light. I thought the place was on fire. I looked around but could find nothing. Then the thought came to me, 'Jesus Christ is not dead but living and it must be He Himself.' So I fell at His feet and got this wonderful peace which I could not get anywhere else. This was the joy I was wishing to get. This was Heaven itself. When I got up the vision had all disappeared; but although the vision disappeared the peace and joy have remained with me ever since. . ."

Dr. R. H. Burke, a Canadian practicing psychiatrist: [a personal experience written in the third person]. "All at once, without warning of any kind, he found himself wrapped around as it were by a flame-colored cloud. For an instant he thought of fire. . .; the next he knew the light was within himself. Directly afterwards came upon him a sense of exaltation, of immense joyousness accompanied or immediately followed by an intellectual illumination impossible to describe. . . .Among other things, he did not merely come to believe, he saw and knew that the Cosmos is not dead but a living Presence, that the soul of man is immortal, that the universe is so built and ordered that without any peradventure all things work together for the good of each and all, that the foundation principle of the world is what we call love and that the happiness of every one is in the long run absolutely certain. . .and that he learned much that no study could ever have taught. The illumination itself continued not more than a few moments, but its effects proved ineffaceable."[18]

Experiences and practices that are psychologically quite parallel to those of Christian and other theistic mystics are found among the devotees of non-theistic religions such as Jainism and Buddhism. The Hindu saint, Sri Ramakrishna, of Calcutta, India, in the last century practiced the methods prescribed by various religions. While remaining attached to Hinduism, he experienced God through the Christian way, as well as through Islam and various Hindu sects.[19]

> *Scholium 10:* Mystic experience of similar patterns, reported by Oriental and Western religious and non-religious votaries, seem to have verisimilitude.

ROUTES TO ATTAINMENT

Theophany (mysticism) expresses a wide variety of phenomena. The mystic trains his body and mind systematically to follow a discipline which the insight of sages has shown to be effective in reaching Reality (the Absolute Source of all Being). There are many routes to this goal. The ascent of this "ladder" involves passage through alternating experiences of pleasure and pain. These experiences are analogous in a way to the pre-transference catharsis in psychiatry. In India, these disciplinary paths are known as the *yogas.* Various similar techniques have been followed by votaries as widely separated as Siberian shamanism, several ancient mystery religions, the Graeco-Roman mystery cults, the Stoics, the Cynics, the Gnostics, and numerous others. They passed into Christianity as spiritual "exercises" in various monastic practices.[20]

Patanjali, the father of Hindu psychology, collected and edited the ancient knowledge, and organized it into the Raja Yoga, generally recognized as the noblest of the several systems. It prescribes an eightfold method of obtaining salvation (union with Brahman or liberation from desire in Nirvana); it prescribes a high idea of ethics, physical aids, and concentration. Thereby the self regains its full freedom.

The mystics of other cultures have their individual emphases, but all exhibit a sort of composite portrait. In general, the steps may be summarized as follows:

1. Awakening of the self to consciousness of Divine Reality, often abrupt and intensely joyous.
2. Purgation of the self from its imperfections.
3. Illumination by contemplation into a partial apprehension of the Absolute as an apprehension but not a union. (Many mystics never go beyond this stage.)
4. Self-surrender in painful death of the self, the will, to the divine will.
5. Union of the self with the Absolute life, accompanied by great joy, enhanced psychic powers, intense certitude.[21]

Oriental mysticism goes on to reabsorption of the individual soul into the Infinite, whereby individuality is no longer identifiable but blissful. The impulsion of the Western mystics to some form of active constructive life differentiates it from non-Christian mysticism in the latter's emphasis on passivity and/or strictly personal salvation.

> *Scholium 11:* All systems questing mystical experience operate fundamentally on a few basic, similar principles: awakening of self, its purgation, meditation, self-surrender, and climactic union with the Absolute in ecstatic certitude.

RELATION TO MORALS AND AESTHETICS

The arts express "an intuition of the Real lying at the root of the visible world and sustaining its life." Art links experience and Reality. Its expression is universally given in symbols, a form of artistic language. Beauty, like mysticism, expresses ineffable emotion, identity of subject and object, exaltation of spirit and mind, sharing of spiritual insights, and purging of soul.

As far back as the days when the mystery religions were popular, the evidence is strong that these practices had a spiritualizing and socializing influence on large numbers of the initiates. Persons became more pious and in every way better than their former selves, contributing to Christian mysticism.

Scholium 12: Mysticism and art both intuit a suprasensory realm which responds to virtuous behavior.

RELIGIOUS SIGNIFICANCE

The God of mysticism is described not as the "modified God of simple theism" but as being wholly non-rational. Mysticism is predominantly a way of life—not just a state—lived in the knowledge of this "wholly other" God. The mystic experience gives concrete knowledge of a Supreme Personality—not necessarily a Person, since this latter implies differentiation and limiting qualities, but it possesses characteristics which correspond to man's spirit. It is this correspondence which makes communion possible.

The areas of knowledge that mysticism furnishes to religion may be listed as follows:

1. the existence of a Reality that transcends the sensory world and yet is one with it;
2. the attainability of a union with this Reality;
3. elements of this kind of Reality reside in every person and are susceptible of development;
4. the road to this higher spiritual development involves: awakening, discipline, enlightenment, self-surrender, and union; and
5. the human psyche in respect to its spiritual aspirations is similar the world over.[23]

But there is more to this. Mankind testifies to a sense of apositive creative force in Reality. It acts like a challenging mystery that incites man's eager search to penetrate it. It behaves as if it were trying to reveal itself, a sort of divine initiative, asserted by Muslim and Christian mystics. So we seem warranted in adding to Underhill's list a sixth one:

6. Reality seems to be actively seeking to increase the revelation of itself.

This is recognized in the flashes of insight that come to creative thinkers seemingly from nowhere—but real. The experience is reported by nature mystics, poets, scientists, artists, religionists. It seems to take the initiative to meet man and to "direct his paths." The "revelation" or insight of one creative discipline is as real as that in any of the others. Such well-attested disciplines as art, philosophy, literature, jurisprudence, and science are all well established as valid in human experience, substantiating the same process when exhibited in any of the other fields. This gives gnosis significance to inspired religious artifacts. All these disciplines are paths to truth, and Reality is as active in one as it is in any. These phenomena support the scientist's idea of Reality as "process" (Whitehead) and the poet's gnosis of cosmic direction as expressed by Tennyson in

> One God, one law, one element,
> And one far off divine event,
> To which the whole creation moves.
> —*In Memoriam, Conclusion,* Stanza 336.

So the mystics are seen as paving the way for man to reach the fulfillment of his spiritual aspirations.

Scholium 13: The exaltation of spirit, the gnosis, the flashes of insight, all exhibit aspects of a Cosmic Force or Power with which man is *en rapport.*

OTHER SIGNIFICANT ASPECTS

Mysticism exerted a basic influence on mediaeval philosophy on several counts:[24] it furnished direct evidence for the importance of individualism in seeking personal salvation; it stressed faith as superior to secular learning; it stressed the unity of nature; and it leaned toward intuition as an important avenue to knowledge.

In earlier chapters, we saw that man is an aspect of electromagnetic energy functioning in accordance with physico-chemical laws in fields of various other aspects of energy. The *guru* and student *(supra)* and the mystics everywhere report that they experience rhythmic, pulsating effects in their spiritual consciousness. At their oceanic peaks, they unanimously report that they are suffused with (or they themselves emit) a light-like effulgence that they at first thought was fire.[25] Other photisms, various aspects of spiritism, (with its "vibrations"), extrasensory perception and other such aspects of parapsychology, and shadow phenomena (see chapter III) all seem to be manifestations of some forms of energy that are not now demonstrable.

When the consciousness becomes aware of a Reality above the everyday world of the sensory, the road to increased apprehension follows a universal pattern. Underhill calls this phenomenon a "law," expressed as follows: ". . .that the general movement of human consciousness, when it obeys its innate tendency to transcendence, is always the same."[26] The act of mystical union apparently makes man a participant in the Becoming of the universe.

Scholium 14: Mysticism has influenced the course of philosophic and religious thought, and manifests phenomena that simulate aspects of radiant energy.

Further pursuit of our inquiry into man's manifestation of his existential awareness leads us to the phenomena of religious expression as revelatory of his ultimate concern.

SCHOLIA AND PERCEPTS FROM MYSTICISM

Ground of Mysticism

Scholium 1 : Mysticism is a category of experience reported by independently-thinking geniuses in inaugurating religions.
Percept : World-wide experience of mysticism.

Scholium 2 : Mysticism is the art of establishing union as psychic liaison with transcendental cosmic reality.
Percept : Mystic quest.

Universality of Mysticism

Scholium 3 : Under the numbing influences of certain practices, the exorcist could bring into subjection the evil spirits to force them to correct their harmful acts.
Percept : Primitive practices.

Scholium 4 : Mysticism possesses many qualities in common among widely scattered mankind.
Percept : World-wide character.

Scholium 5 : Mysticism as an expression of individualist thinking undermined mediaeval sacerdotalism and paved the way for the Reformation and the Romantic Movement, with independent thinking and personalist emphasis.
Percept : Stimulation to humanistic thinking.

Mysticism As Knowledge

Scholium 6 : Mysticism recognizes values by intuitive insights, the ground of civilization and cultural artifacts.

Percept : Intuitive insights.

Scholium 7 : Mysticism describes the preternatural (inexplicable) experiences of seeming union with a transcendent state of being as a "cosmic consciousness."

Percept : Experimental description.

Scholium 8 : The religious and non-religious worlds exhibit communion and spiritual reaction with the transcendent force that makes nature what it is.

Percept : Ineffable transcendence.

Scholium 9 : Objectivity of mystical experience is perceived in behavioral patterns and in responsible, consistent testimony.

Percept : Transcendent knowledge.

Mystic Experience

Scholium 10 : Mystic experience of similar patterns, reported by Oriental and Western religious and non-religious votaries, seem to have verisimilitude.

Percept : Similar experience from diversity of persons.

Routes to Attainment

Scholium 11 : All systems questing mystic experience operate fundamentally on a few basic, similar principles: awakening of self, its purgation, meditation, self-surrender, and climactic union with the Absolute in ecstatic certitude.

Percept : Similarity of all disciplines.

Relation to Morals and Aesthetics

Scholium 12: Mysticism and art both intuit a suprasensory realm which responds to virtuous behavior.

Percept : Aesthetics and morality as mystic intuition.

Religious Significance

Scholium 13 : The exaltation of spirit, the gnosis, the flashes of insight, all exhibit apects of a Cosmic Presence with which man is *en rapport.*

Percept: Spiritual exaltation.

Other Significant Aspects

Scholium 14 : Mysticism has influenced the course of philosophic and religious thought, and manifests phenomena that simulate aspects of radiant energy.

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CHAPTER X. OBSERVED PHENOMENA IN RELIGION

NATURE OF RELIGION

Universal aspects

> Religion is the vision of something which stands beyond, behind, and within, the passing flux of immediate things; something which is real, and yet waiting to be realized; something which is a remote possibility, and yet the greatest of present facts; something that gives meaning to all the passes, and yet eludes apprehension; something whose possession is the final good, and yet is beyond all reach; something which is the ultimate ideal, and the hopeless quest.—Whitehead.[1]

MAN has hungered for something in the depths of himself that he has not known how to attain. He has felt that there is an element of disharmony in his "being."[2] He has sensed the reality of a cosmic presence that is generally more diffused than what is experienced by the senses. Such feelings are strikingly similar over all the world and from time immemorial. The practice of religion is man's effort to satisfy these needs. Crude fancies arose out of experience, but they cleared and have steadily taken clearer form, showing a persistent upward trend. When it clouds and fades, it has again and again broken forth with added richness.

Religion has transcended the boundaries of ethnic groups. Differentiation of mankind into religious groups does not coincide with any other grouping. Man world-wide responded to the exhortations of his seers to lift his vision from exclusive interest in secular matters to the transcendent realms of freedom, soul, and personality.[3] Temporal events were seen to have eternal significance. Man has found profound satisfaction in pursuing the virtues of truth, beauty, goodness, holiness, unity, expressed in a system of belief as a goal. He seeks elements of enduring value behind the "disconcerting flux of experience."

> *Scholium 1:* Mankind has hungered for contact with transcendent powers, pursuing diverse procedures to attain this end.

Creative force

Religion is the most creative of all men's institutions. Religion has shown steady growth in a rising tide of progressively deeper religious insight.[4] Whitehead observed that religion is the one element in human experience which persistently shows an upward trend.[5]

Science has grown up within a Christian tradition. The founder of science at Oxford University was later Bishop of Lincoln. The Royal Society listed many men of religion. Practically all the older schools and the greater part of Oxford and Cambridge are religious foundations.[6] The priests of Egypt developed geometry for measuring land inundated by the Nile. Astronomy evolved in Babylon to set the time for the sacred festivals. The new spiritual community that rose in Western Europe and in Byzantium preserved the classical traditions and inaugurated in the universities, the spirit of inquiry stimulating the greatest development of philosophical study since its flowering in ancient Greece.[7]

> *Scholium 2:* Religion has been the most stimulating creative and cultural factor of all man's institutions in the development of the artifacts of civilization.

Quest for transcendent being

Man's religious interest everywhere has expressed his longing to secure a larger measure of "cosmic consciousness" and "life more abundantly." He feels an imperative urge or tendency[8] to self-transcendence. Religion has helped man to use the clues which he has discovered as pointing to the reality beyond man's explicit apprehension. His conceptions have been based upon expectations from a rationality that has become aware of domains of being of which investigations in the sciences and humanities have revealed only their respective limited aspects of the whole.[9] The arts have been described as lying somewhere between science and worship.

> *Scholium 3:* Man experiences a persistent cosmic consciousness which stimulates him to contact this transcendent power.

Stabilizing power

The universality of religion in space runs parallel to its persistence in time. The life span of religious organizations, such as Hinduism, Buddhism, Christianity, Confucianism, Judaism, Islam, has already been from some 1,300 years to 3,500 years, with no signs of early disappearance.[10] On the other hand, thirty-six of the sovereign states have existed less than 100 years, and a large majority of the present nations have existed less than 200 years. Einstein extolled the church as the one great bulwark against Naziism.[11]

Truth as expressed in poetry is absolute by virtue of the fact that it is static in the time dimension—the comprehensive vision of prophecy[12]—whereas truth expressed in science is relative, because it is cumulative. This poetic aspect of truth expresses the stabilizing power of the religious consciousness.

> *Scholium 4:* Religious systems exhibit man's most effective means for assuaging his hunger for a suprasensory sanction to his ideals.

DEFINITIONS

The word "religion" originally possessed a fairly clear meaning. Nowadays, for the man-in-the-street, the U.S. Supreme Court[13] spoke as follows: "The term 'religion' has reference to one's views of his relationship to his Creator, and to the obligations they impose of reference for his being and character, and of obedience to his will." A possibly more technically comprehensive definition of religion would be:

> A system of beliefs about the nature of the force(s) ultimately shaping man's destiny, and the practices associated therewith, shared by the members of a group."[14]

These formulations express worship of a supranatural deity, moral and ethical responsibility, and participation in community religious life. From a wide variety of definitions, I have pieced together the following practical working definition:

> Religion is a group-shared system of thought and action which purposes to orient the person physically, socially, and spiritually to what he believes to be Cosmic Reality.

> *Scholium 5:* Religion is belief and practice that purposes to orient the person to Cosmic Reality.

RELIGIOUS ARTIFACTS

Religion has been expressed in ways that are more or less similar over the world. These vary in detail, reflecting the culture of place and of the period. Fundamentally, they all exhibit much in common. The most pervasive are as follows:

Numinous

Emerging from ethnological beginnings, man is observed world-wide to have engaged in certain practices which indicate a sensitivity to a reality which is outside the sensory perception of his everyday living. Otto calls this experience the "numinous," a phenomenon that is not reducible to any other state of consciousness. This feeling of a *mysterium* possesses the two components of the *tremendum* (as haunting and repelling) and the *fascinans* (as attracting and alluring). The union of the two constitutes the idea of the holy and the good as sacrosanct. Expressed religiously, it is "the still small voice of conscience."

In this connection, I report an experience of Admiral Richard E. Byrd:[15]

> Harmony, that was it! That was what came out of the silence in Anarctica—a growth rhythm, the strain of a perfect chord, the music of the spheres, perhaps. . . . In that instant I could feel no doubt of man's oneness with the universe. The conviction came that the rhythm was too orderly, too harmonious, too perfect to be a product of blind chance—that therefore there must be a prupose in the whole and that man was a part of that whole and not an accidental offshoot. It was a feeling that transcended reason; that went to the heart of man's despair and found it groundless. This universe was a cosmos, not a chaos. . . . The human race, then, is not alone in the universe."

A somewhat similar experience is reported by Commander Worsley in *Shackleton's Boat Journey*, describing the hazardous trip of three men across the glaciers and mountains of South Georgia: "Sir Ernest and I, comparing notes, found that we each had a strange feeling that there had been a fourth in our party, and Crean afterwards confessed to the same feeling."*

Scholium 6: Reputable explorers report a feeling that a living presence accompanied them in their privations.

Evil

Growing out of man's belief in the existence of a deadening force in

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*Quoted from H. D. Anthony in *Science and Its Background,* 4th ed., London, Macmillan and Co., p. 338.

nature called evil, (See Chapter V), he felt that any infraction of socioculturally acceptable and/or divinely ordained behavior was "sin." This was held to be heinous *per se,* as an infraction of what deity had decreed. The several religions did not agree on what they considered to be sin, but all agreed that sin was something that was "wrong" and that man was obligated to rid himself of it. Man attributed many evil acts to the influence of suprasensory beings, ranging all the way from deity down to spirits and demons in the objects of nature. In the Judeo-Christian tradition, evil was personified as the power of "Satan." In the Zoroastrian, Jewish, Christian, Moslem communities, evil is a sort of cosmic principle that opposes the sanctions of a benevolent deity and man's efforts to conform to the deity's decrees.

In the Christian community, some of these sins were thought to be particularly deadly—idolatry, blasphemy, murder, adultery, fornication, false-witness, and fraud. However, across the centuries the more discerning persons have come to consider sin in a more fundamental light: the conflict (or tension) between two natural forces—(first), the natural, self-centered drive to stay alive and to resist the destructive forces of the environment (living and non-living), and (second), the relatively recent emergence of feelings of love, unselfishness, mercy, and ideals of what *ought* to be normative, thus a sensitivity to right and wrong. The feelings and behavior under the first category seemed to conflict with those of the second category, engendering the experienced tension, anxiety, and guilt as coming from the low order of the "flesh." Sin has taken on the more fundamental expression of pride, self-sufficiency, and violation of what the person himself considers to be right, analogous to the Greeks' heinous sin of *hubris.*

The Christian religion is built around a similar conception. Man is believed to have been born into this world with inherited sin, sometimes called "depravity." Traits that man avers to be sinful are seen in the lower animals: the great apes show resentment, anger, and rage, ranging from mild dislike to excessive jealousy and hatred.[16] The temper tantrums of chimpanzees are similar to those of unrestrained human infants.

> *Scholium 7:* Events which frustrate man's desires or antagonize his beliefs are called evil.

Faith

Santayana calls faith "the soul's invincible surmise." In the ordinary New Testament usage, it expresses an attitude of trustful expectancy. In such a sense, faith would seem to be a force of the mind that gives direction to the organism in its pursuit of the supraconscious. All the religions of the world recognize that something more than reasoned knowledge is a basic need of the psyche. Faith takes hold on things that are as yet not seen and creates from them reality. It is "fact" in that it reflects the particular and present drive of experience. It is expressive of "the forward thrust of being,"[17] in that it makes knowledge possible through a kind of reasonable confidence, bringing intuitive insight and expectancy that a given behavior is likely to be fruitful in undertaking any given action. Such expectancy makes it creative.

In another sense, faith is a development of confidence in the reality of religious consciousness. It is suprarational in that it bespeaks a deep-seated commitment that motivates behavior. James p 73

Scholium 8: Faith is an expression of Man's dependence on the reality of suprasensory conviction.

Prayer

The prayer experiences of the outstanding religious leaders attest the universality of spiritual objectivity. Persons of differing ethnic groups express this urge to communicate with a variety of practices: the yoga techniques, the practice of meditation and adoration, the public engagement in community worship, and the use of sacrament and ritual to enhance spiritual sensitivity.

Commonly, prayer expresses a deep desire that suprasensory power be invoked to ameliorate certain distressful situations, both objective as well as subjective. George Muller's orphanages for 700 destitute children were supported entirely by prayer, without any public solicitation for funds.[18] Laubach's "prayer experiments" for strangers in public places brought significantly relevant responses.[19] Many cases of healing of disease is reported from prayer at the medical religious center at Lourdes, France.[20]

Scholium 9: Man expresses his needs and desires directly so suprasensory springs of cosmic consciousness.

Salvation

Nearly all the relgions express man's efforts to escape from the feeling of guilt and sin, of suffering and death, by relating himself properly to what he believes to be the ultimate power that controls the behavior of the universe. "Salvation" under various names expresses man's deliverance from earthly unrest of spirit and from cosmic disharmony.

All the great religions practice any of three general ways for seeking this relief, namely:

1. *the way of works*—based on behavioral prescribed practices;
2. *the way of devotion*—expressing the quality of the votary's faith, love, and commitment;
3. *the way of knowledge*—achieving oneness with God in cosmic harmony and unity.

The phenomena of salvation, in all cases, make the votary feel that he becomes continuous with a wider self. Both religion and psychiatry follow a parallel path over a limited course, but the religious emphasis exhibits aspects that precede and follow the psychotherapeutic practice. This is shown in the controlled comparative study of the relative effects of religious prayer versus psychotherapy, reported by Parker and Dare.[21] The cases who were psychiatrically treated secured psychic harmony and health, but the religiously-motivated group received the additional element of a continuing interest to expand themselves in helping other persons who needed the kind of help that they themselves had received.

> *Scholium 10:* Man's feeling of lostness, weakness, guilt, and dependency impels him to seek relief by seeking direct contact with the cosmic suprasensory power.

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Meaning

The most persistent of man's searches has been directed to find a harmony that has seemed elusive by reason of the paradoxes encountered in living. The Chinese have expressed this as *Yin* and *Yang*—basic cosmic principles seen in the contrast of good-evil, light-dark, male-female, active-passive, as the principle of opposites.

Furthermore, the erstwhile certainty with which he had held his ideas of truth has now become adumbrated by the new knowledge represented by the abstractions of physical science, psychology, and ethnological relativity. Anxiety and fear express his perturbation arising from anticipation of some kind of impending harm.

The East emphasizes that it has correctly conceived "the Truth" to be a passive unified state of being. The West has held that there are two great cosmic forces, personified as God and Satan, struggling to obtain supremacy. Against this background of duality and uncertainty is the irresistible drive of the vitalizing force propelling man onward to new perspectives and potential for responsible directive action. Conception of the cosmos as a *uni*-verse elucidates the whole process of Becoming as expressive of process within natural law, ranging harmoniously to embrace both conscious (sensory) and supraconscious (intuitive) forces.

Scholium 11: The paradoxes experienced in living have stimulated man to intuit that coherent meaning entails from the pursuit of clues toward the elucidation of cosmic process within law.

Spirituality

The word "spirituality" describes a degree of union, rapport, or attunement with cosmic reality. It is that kind of psychic reaction to religious experience which expresses exaltation, the numinous, mysticism, and aesthetic appreciation—all enhancing creative imagination. It is realized when the mind (as soul dimension) reacts sensitively to sights, sounds, and kindred sensations that lift the emotions to a feeling of joyous harmony, serenity, and joyous peace of mind. This latter is not merely a cessation from anxiety but a dynamic attachment to self-transcendent values that preclude the invasion of troublesome concerns.

Spirituality manifests itself in everyday living by man's response to the urge to rise above the secular demands for making a living to a higher plane of outlook, a widening of interests, the opening of channels for fuller living, greater devotion to the welfare of others, and the cultivation of psychic sensitivity to signals from cosmic consciousness. This expresses the divine in man, the "inner light," "the over soul," Jen, Tao, Nirvana, Brahman or Atman, the Infinite Manifold.[22] This is the realm where dreams are made, from whence "fairy tales" and symbolism convey ideas, and where insight finds meaning as intuitive conation.

Scholium 12: Spirituality expresses that function of mind which reacts with the supraconscious in nature, enhancing cosmic consciousness as giving meaning to existence.

Sociality

One of the striking features of religious commitment is the motivation to acquaint "non-believers" with the benefits that accrue from its practice. These range all the way from relief of immediate hunger and ill-health to emphases on physical, educational, and social well-being—all responding positively to the question, "Am I my brother's keeper?"

This social-mindedness is extended further to the inauguration of medical services in primitive regions. Additional services include the fields of technology, agriculture, commerce, social welfare, and others. This motif of man's brotherhood reveals the outpouring of the religious man's concern for the welfare of his less favored fellowmen.

Scholium 13: Religious man's concern for the welfare of his less favored fellowman prompts selfless beneficial service.

Symbolism

As shown earlier, the language of everyday living has been found to be inadequate to express man's experiences in a realm that transcends the physical world. He found that he could communicate in such a field by the use of symbols and "myths" (as allegorical fiction). These are dramatized forms of ideas about the supraconscious.

Symbolism has helped man sharpen his imaginative vision and to enlarge the meaning of an immediate experience. They point beyond themselves and foster participation in a vision of the divine that has not been found as effective by any other way of expression. The "eternal realm" seems to break through the veil that screens the unknown and grasps man in ecstatic experience, as Randall expresses it. They stimulate man to visualize powers that cannot be verbalized. Representative religious symbols are: the Cross, the Star of David, the Buddhist lotus position, the ikon, candle, pictures of saints, sacred vessels, incense, the lotus, the mandala.

Scholium 14: The inadequacy of syntactical language to express supraconsciousness led to the development of symbols for visualizing what cannot be verbalized.

Mysticism

Personal religious experience has had its roots in the mystical states of consciousness (see *supra).* It is the subjective experience that the votary reports as his immediate consciousness of some cosmic force or power greater than himself. It expresses a suprasensory dimension of experience. Roads to this experience universally comprise similar disciplines that the religions emphasize, a fact which reveals that the two areas of experience constitute aspects of the same ultimate concern. So all religious-minded persons are mystics, to a degree. This is religious "experience."

Scholium 15: Mystical experience in religion coheres with supraconscious cosmic phenomena.

Soul life after death

All the theistic religions, including Hinduism and Buddhism, hold that the personality survives the death of the physical body. Pythagoras, in the fifth century B.C., asserted this continuing consciousness, from roots in the mystery cult of Orphism.[23] It was called "metempsychosis."

Several societies for the study and evaluation of reported physical manifestations of mysterious phenomena, purported to come from the manifestation of spiritistic entities, have published many volumes of their studies on soul survival. These have been conducted with all the rigor that attends any investigation that is scientifically pursued in the fields of psychology and ethnology.[24] Many conservatively written books have appeared from individual investigators in this field.[25] A more professionally precise study is reported by Ducasse.[26] He adduces that on non-religious grounds, but based on sensory secular data, it is reasonable to expect continuing consciousness after death of the body.

Such survival, as the religions teach it, ranges all the way from a kind of identification of the soul into cosmic Reality up to a continuation of self-identification and awareness in a "place" as a heaven of the Christian and paradise of the Muslim. Every one asserts a final state of bliss and sublime happiness.

> *Scholium 16:* All the religions assert that the soul continues in self-consciousness in some form or another in blissful relation to cosmic reality.

Supraconscious reality

Numinous experiences reported widely by mankind indicate the recognition of a cosmic power that transcends sensory apprehension. It is called "God," "Jahweh," "Allah," "the Oversoul," and many others.[27] The Logos idea in the Judeo-Hellenic Age was held to express the rational structure of the universe. God is known conceptually in many other aspects: Aristotle's "Prime Mover," Bergson's "mystic love," Newton's "the original force," and to Einstein:

> . . .a conviction, akin to religious feeling, of the rationality or intelligibility of the world lies behind all scientific work of a higher order. This firm belief, a belief bound up with deep feeling, in a superior mind which reveals itself in the world of experience, represents my conception of God.[28]

Man's relation to this Supreme Being was usually held to be dependent on an intermediary called a "saviour." There have been many of these, the most prominent of whom have been:

Jesus—Judea
Gautama—India
Mohammed—Arabia
Zoroaster—Persia
Lao Tzu—China
Confucius—China

All of these were historical. There have been many who were not historical, such as Krishna and Indra in India, Osiris in Egypt, Prometheus in Rome, and Orpheus in Greece. All received divine honors. There was great similarity in their reported lives: virgin birth, high moral teaching, miraculous powers, crucifixion, resurrection, ascension to heaven. Their messages were directed particularly to the greatest needs of their respective people.

Scholium 17: Everywhere man has held that the supraconscious, numinous reality could be contacted personally, facilitated by intermediaries in sociocultural empathy.

Objective expression

Worship. Worship is a behavioral practice expressed in sociocultural patterns called rituals, showing respect, adoration, and sanctity. Its characteristic expression is prayer, particularly in the West; meditation, in the East. The spirit of devotion and spirituality are stimulated by various symbolisms such as processionals, genuflexions, gorgeous attire, music, bells, holy water, the cross, the star of David, and others, especially the sacrament—a religious rite performed with meticulous precision by a person who has ecclesiastical authorization.

Fellowship. Every religion develops a ritual and an organization—a chosen people, a church, a tribe, a denomination, a brotherhood, a cult—making possible an uplifting public worship. Architectural and musical splendor, spectacular processionals, and a trained institutionalized service express objectively the subjective upreach of soul.

Hagiography. Every religion has its sacred writings. Some, initially suggestive and devotional, acquire sanctity with time, and ultimately held to be authoritative of the teachings of the founders. These become supplemented by explanatory commentaries, theological and other philosophical treatises, and devotional exhortations. The best known are the *Bible* of Judaism and Christianity, the *Qur'an* (Koran) of Islam, and the *Upanishads, Bhagavadgita,* and *Laws of Manu* of Hinduism.

Scholium 18: Religious behavioral patterns, institutions, and literature exhibit man's responsibility to manifestations of supraconscious forces.

Self-transcendence

All the religions express man's response to a supraconscious force that is drawing him to a "more abundant life" than that which he would follow without this vision. Such an effulgence eventuates when the votary directs his energy to securing liaison with this supreme cosmic power. This craving expresses the forward thrust of spirit to interpenetrate this cosmic consciousness. This upreach of spirit is one of man's most cherished and persistent values.

This goal of spiritual sensitivity toward union with another person-like entity engenders the emotional behavior of love. The suppliant learns that self-centeredness must be replaced by altruism, as selfless concern for the welfare of other persons, to the extent that it can be given as love. All the religions teach it.[29]

Scholium 19: All the leading religions emphasize man's responsibility to behave with self-giving love to deity and to fellowmen.

RELIGIOUS LIFE

Psychology of religion

In one of the first authoritative studies on the psychology of religion, William James in 1911[38] found many cases of religious experience* as displaying a wide variety of characteristics. The greatest religions were classed as those whose tenets dealt with deliverance from various states of anxiety. The votary feels a union with a friendly "something" larger and other than himself, and this brings him great peace of soul. Unity of a divided self (the "sick soul") can come through religion as well as through other means.

Starbuck analyzed the reports of 192 young persons and concluded that in conversion—whether religious or non-religious—the individual transfers his interests from self-centeredness to affection for and a "oneness with the larger life outside."[31] The sudden, cataclysmic crisis experiences were reported to be more far-reaching and permanent than the "spontaneous awakenings."

Coe's studies of 77 converts led him to conclude that through belief in the mystical union of the votary with God, he passed from the recurrent struggles of the divided self to serenity and organized will.[32] The experience of mysticism was defended by Pratt.[33] The soul needs the glow of feeling and the sense of the infinite as important for its spiritual nature.

Delacroix[34] studied the autobiographies of Santa Teresa, Madam Guyon, and Henry Suso—Spanish, French, and German, respectively—and reported that they all exhibited pathological features of visions, auditions, and morbid asceticism, but all were moving toward inner unification and social effectiveness.

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* Religious experience is described by John Dewey as the sense of an enveloping whole, in his *Human Nature and Conduct,* (New York: Modern Library, 1930), p. 264.

Boisen studied the religious expression of the population of a small midwestern town, reporting that societal dislocation and emotional stress impels the person towards a dynamic morality and leads him to a mystical union with the Greater-than-self and broadening of interests to a societal universality.

Norberg analyzed the personal experience of the "existential me."[36] Conversion as the unfolding of self may come as an apparently instantaneous experience (e.g. St. Paul, Augustine, John Wesley) or a "synoptic" type of a gradual one that leads to heroic vision and joyous activity or as an "opening" type of a conscious way of living.

Allport studied the religious outlook of 414 Harvard and 86 Radcliffe undergraduates.[37] Seven out of ten students said that they needed some form of religious orientation to achieve a fully mature philosophy of life. Twenty-nine per cent reported some crisis or emotional stimulation to a religious commitment along orthodox lines. Forty per cent felt a religious need and yet repudiated the church of their upbringing. Twelve per cent were atheists and an additional twenty per cent were agnostics. These data were roughly supported by investigations at the University of Wisconsin and Syracuse University. Religion served to close the gap between the actual state of own's values and their realization. It was reported as giving meaning to life.

Under the rubric of Parapsychology, many phenomena are being reported as being relevant to religion (see above), intimating (at least) varying degrees of insight into psychic-consciousness after death of the body.

Scholium 20: Religion gives psychic stability through cosmic orientation and balanced perspective to living.

Cases of religious experience

The subjective character of religious experience precludes its classification in concise definitive terms. The converted person often testified in colorful, emotionally weighted, but necessarily unbalanced terms. No two persons may agree in all respects, but they often reveal important characteristics of religious experience that resemble much of what others encounter.

Christian. Many cases are reported by William James and Clark.[38]

John Wesley's experience of the sudden awareness of his heart being "strangely warmed" is a modern Christian classic. He further reported in his journal that he found 652 members of "our Society" who unanimously testified that their "deliverance from sin" was instantaneous.

Among the cases of gradual conversion were those of Tolstoi and Bunyan. Edward Everett Hel declared that he had no consciousness of sin from his youth up.

C. S. Lewis describes in autobiographic detail[39] his recognition that the *litterateurs* who "fed" him were religious persons like Plato, Aeschylus, Virgil, whereas "those writers who did not suffer from religion" (Shaw, Wells, Mills, Gibbon, Voltaire) and with whom he would be supposed to be in sympathy, actually "seemed a little thin. . .no depth in them." Seeking joy, he slowly realized that it lay in an object outside of himself, and recognized this Absolute as God, then the "Dying God," and finally "Spirit"—the Word made flesh. The transition from disbelief was ambiguous—but the end was definite.

Thomas Carlyle recounts his experience of conversion in *Sartor Resartus* (abstracted in Clark, pp. 194-198). His skeptical, empty, solitary life from lost early religious moorings was converted to a glowing joy through the surrender of self by an "Everlasting Yea" to a blessed relation to the Father-God of love.

Hoxie N. Fairchild writes about the gradual discovery of personal integration around commitment to a "divine creative mind," thereby giving his life new meaning and direction.[40] A modern mystic, Brother Mandus, tells of his illumination as revealing a constant presence:

> I remember now. . .that vital moment when I was baptized by the Holy Spirit within. For one perfect second, unexpected, unheralded, and while I was doing a trivial task, my personal mind and body were fused in LIGHT; a breathless, unbearable LIGHT-PERFECTION, as intense as the explosion of a flash of lightening within me. More unendurable than the holy flame as LIGHT was the perfect nature of Christ which extinguished self. In this timeless second, I knew a Love, Wisdom, Knowledge, and Ecstasy transcending anything I could understand or describe. . . .[41]

The character of the above experience is strikingly similar to that of the Indian Sundar Singh (see Chapter IX). The Sadhu recounts many cases where Orientals have become followers of Christ, but have not become identified with the Christian community as such. He finds Christians to be as happy in huts as in palaces, and this same experience is observed among those who have identified themselves with the Christian community as well as among those who have not so identified themselves. Blind Helen Keller stated that she knew God before she knew his name in any human language.

Non-Christian.

Pre-Christian. Pre-Christian, Old Testament conversions seem indicated in the accounts of Jacob's wrestling with the angel (Gen. 32:24-30), the vision of Isaiah (Isaiah 6), the conversion of the Ninevites (Jonah 3:5-10), and those under John the Baptist (Acts 19:3). With the decline of the prophet and the growing influence of the priest and scribe, the explosive conversions seemed to be replaced by the cultural.

Hindu. Religious satisfaction (salvation) in Hinduism is secured through the yoga disciplines, by which control of the mind brings the revelation of truth. The bhakti yoga, the leading religion of India since the fifteenth century, arose from a great religious revival which swept India, particularly under the great leader Chaitanya. Conversions simulated those under Christian evangelism. This revival is said to have changed the face of Bengal, and its effects continue today. Another great movement was led by Keshab Chandra Sen in 1857, in which many lives were changed. The Ramakrishna-Vedanta Missionary Society is now the chief organized center of this movement, with missions around the world

Buddhist. Gautama, the founder of Buddhism, experienced an outstanding conversion. During his forty years of religious ministry, he gathered many followers, who often underwent a definite conversion experience at the time they accepted his teaching.

In the Hinayana Buddhism of southern India, Ceylon, and Burma, conversion generally is gradual as a growth into the spiritual life. The Mahayana branch of Buddhism, dominating the north and China, Tibet, Korea, and Japan, all worship and adore a divine person, with much ritual, sacred scripture, and aspects of monasticism.

Islam. Evidence of Mohammed's religious conversion is lacking. The religion he preached seemed to exert only a relatively superficial conversion of the Arabian tribes, as shown by their widespread apostasy that followed the prophet's death. Mohammed's entirely legalistic conception of salvation became supplemented by the intense spiritual emphasis of the Sufis in Persia. It has furnished Islam with its saints. Cases of genuine spiritual awakening abound in a system which made repentance the first of the Seven Stages in the Unitive Way.

Greek and Roman. Religion among the Greeks and Romans reached its highest moral and spiritual insights in the poets, dramatists, and philosophers, such as Aeschylus, Sophocles, Euripedes, Socrates, and Plato. The Stoics and Cynics continued this tradition of moral emphasis, and many manifested fruits of religious conversion.

Other Non-Christian religions. Egypt has yielded no documents that emphasize personal religion but many on practical affairs and on preparation for the future life. They sought a noble life, but did not recognize sin. But Iknaton (Amenhopis IV), in 1375-1358 B.C., sought to revolutionize Egyptian religion by introducing a spiritual and devotional worship of solar monotheism.

In Babylon and Assyria, the religious spirit reached its highest point in the Penitential Psalms, but their main emphasis was on securing divine favor for secular ends.

Zoroaster left no clear data concerning any personal religion. Confucius and Lao Tzu left religion as they found it at the animistic level, although they preached a high level of morality and ethical virtue.

In Japan, near the end of the eighth century A.D., Kobo saw a vision of Buddha, and undertook the reformation of the Buddhist monasticism. In the twelfth and thirteenth centuries, a great religious revival swept Japan, but religion became nominal through securing salvation by merely uttering the Sacred Title.

Scholium 21: Men everywhere report similar transformations of their lives by the pursuit of various religious and other self-transcending concerns.

Characteristics of religious experience

General ground. The primary data of religion are the testimonies of millions of persons, throughout several thousand years, of various races and culture levels, all reporting an experience of suprasensory reality. The saints of every faith are more akin in understanding, tolerance, spiritual expression, humility, and charity to one another than they are to their fellow religionists.

Religions display the following characteristics:[42] experience as ultimate reality, total response, most intense human experience, and practical application to behavior in living. It seeks expression, and sees a similarity of forms such as myths, then doctrine, then content in theology and philosophy, following on into worship, observance of sacraments, charity, and social concern.

The universal experience of man is that he feels and suffers under the tension of a divided self. All religions agree that the divided self can find relief only through self-surrender to the ideal that the person seeks, usually accompanied by the pursuit along various paths of self-discipline. No case of human depravity has ever been observed to be recalcitrant to the power of religious faith. Man's self-centeredness is directed into new channels of selfless devotion. All the religions maintain that a self-centered life cannot find salvation—spiritual satisfaction.

Christian. Christian religious conversion embraces the preceding general characteristics and in addition a confidence that they have encountered a transcendent spiritual power, an objective presence. It supplies a positive increment to living by imparting a feeling of influx of spiritual energy and vitality. The seeker reports that upon the surrender of his ego to this power, he finds an unexpected joy, a deep sense of satisfaction, and a rare consciousness of power. He feels assurance that all is well in the realm of his spirit. He enters upon a state of trust, confidence, and union with transcendent power, entailing love for all mankind. The personality is so changed that the person feels actually born anew.

The Christian witness appears both as a crisis experience and as a gradual growth, as indicated above. A study of 2,174 cases of religious awakening showed 6.7 per cent as crisis conversion, and 66.1 per cent as gradual.[43] The average conversion experience of males is at the age of 16.4 years, and that of females 14.8. This awakening to religious concern starts generally about three years earlier, when conversion occurs by the more gradual process, than it starts with the crisis type.

Non-Christian Religious Experience. All religions were founded on the personal experience of the seers who found union with absolute reality. Salvation is essentially similar everywhere. Only its modes vary in accordance to the respective cultural milieu. In every religion, persons aver that by self-abnegation, meditation, worship, selflessness, and discipline, they achieve deliverance from the frustration and tension of life, the power of freedem from guilt, and union with divinity. Conversion may be sudden, but the vast majority of persons go through the gradual process of spiritual development and transformation.[44] The commitment of the Hindu pupil when he enters upon spiritual instruction by a *guru* (teacher) marks the beginning of spiritual life, equating this with the Christian "new birth." The emphasis on individual experience usually seems greater in Mahayana Buddhism than in Christianity. Insight into the mystery of reality itself comes by making the spiritual life wholly integrated into the whole of living. It is analogous to the assimilation of physical events into the consciousness through seeing them and experiencing them in everyday living. A new type of life emerges with a higher correspondence between one's self and reality.[45]

Scholium 22: Religious experience is described as being similar basically in all the religions, embracing mystic unity between oneself and reality and spiritual quest in private and communal ritual, and usually involving societal relatedness.

Evaluation

One's choice of the most enriching of the world's religions can be guided by judging them in the light of the following criteria:[46]

1. The most satisfactory, verified, coherent account of the universe and man;
2. the personal and social values which most fully facilitates realization of the individual;
3. elucidation of ideals for the raising of society to higher levels;
4. engendering of the highest qualities of character for abundant and radiant living.

Religion as knowledge

The question posed by these studies is whether man's relation to all the apperceptions *supra* can be called knowledge. Radhakrishnan maintains that such spiritual experience does have cognitive value.[46] The reality of the experience is revealed in the inward change which manifests itself in the new type of life that emerges. It has a functional value that integrates the whole personality and sets it on a higher level of mind. As Shakespeare puts it, "this power. . .apprehends more than cool reason ever comprehends."

A perception is truly cognitive when its use is followed by consequences which agree or harmonize with other consequences, following independently of its being perceived. Knowledge is valid perception and belief that is characterized by logical certitude.[47] The true is that which is indubitably logical or experientially verified. Knowledge is a form of union: the knower and the object become united. The subject (the person) "grasps" the object (Reality).

The eternal order is apprehended as interpenetrating the natural order. Men everywhere recognize this as the mystic experience. It exhibits the pressure of truth to reveal itself, as shown in the sudden flashes of insight, intuition, and enlightenment. Since the processes of induction (gnosis, intuition, inspiration) in the sciences, arts, and humanities eventuate in dependable knowledge, so the use of the same technique in the field of religion gives dependable information likewise. In all these disciplines, truth is revealed as one whole pattern. Another name for it is REALITY. The theistic religions call it "Deity."

Scholium 23: Existential spiritual experience brings dependable suprasensory knowledge.

The interaction of man with his environment—physical and societal—as presented above are empirical data publicly known. They embrace phenomena that are predominantly encountered in daily living and in addition they also exhibit aspects that seem in some way to relate to forces that are *supra*-natural. These events constitute clues to a "space" (Heim) or realm of being that embraces them all in a coherent system of being and becoming. Analogous to Newton's speculation that miscellaneous astronomical data might be clues for hazarding a guess that underlying them all was a hidden co-ordinating force, so we should feel warranted in essaying to build a pattern of being that gathers all environmental events into one whole system that is coherent with present knowledge. This will constitute the content of PART II.

SCHOLIA AND PERCEPTS FROM RELIGION

Nature of Religion

Scholium 1: Mankind has hungered for contact with transcendent powers, pursuing diverse procedures to attainment.
Percept: Religions diverse.

Scholium 2: Religion has been the most stimulating creative and cultural factor of all man's institutions in the development of the artifacts of civilization.
Percept: Basis of civilization.

Scholium 3: Man experiences a persistent cosmic consciousness which stimulates him to contact this transcendent power.
Percept: Urge to transcendent contact.

Scholium 4: Religious systems exhibit man's most effective means for assuaging his hunger for a suprasensory sanction to his ideals.
Percept: Religion as stable quest.

Definitions

Scholium 5: Religion is belief and practice that purposes to orient the person to Cosmic Reality.
Percept: Religion orients to Reality.

Religious Artifacts

Scholium 6: Reputable explorers report a feeling that a living presence accompanied them in their privations.
Percept: Consciousness of living presence.

Scholium 7: Events which frustrate man's desires or that antagonize his beliefs are called evil.
Percept: Evil as frustrating events.

Scholium 8: Faith is an expression of man's dependence on the reality of suprasensory conviction.

Percept: Faith as suprasensory dependence.

Scholium 9: Man expresses his needs and desires directly to suprasensory springs of cosmic consciousness.
Percept: Desires expressed directly.

Scholium 10: Man's feelings of lostness, weakness, guilt, and dependency impels him to seek relief by securing direct connection with the suprasensory power.
Percept: Quest for salvation.

Scholium 11: The paradoxes experienced in living have stimulated man to intuit that coherent meaning entails from the pursuit of clues toward the elucidation of cosmic process within law.
Percept: Cosmic unifying force.

Scholium 11: Spirituality expresses that function of mind which reacts with the supraconscious in nature, enhancing cosmic consciousness as giving meaning to existence.
Percept: Suprasensory reaction of mind.

Scholium 13: Religious man's concern for the welfare of his less favored fellowmen prompts selfless, beneficial service.
Percept: Altruistic service.

Scholium 14: The inadequacy of syntactical language to express supraconsciousness led to the development of symbols for visualizing what cannot be verbalized.
Percept: Symbols as visualizing supraconsciousness.

Scholium 15: Mystical experience in religion coheres with supraconscious cosmic phenomena.
Percept: Mysticism coherent with cosmic phenomena.

Scholium 16: All the religions assert that the soul continues in self-consciousness in some form or another in blissful relation to cosmic reality.
Percept: Blissful awareness after bodily death.

Scholium 17: Everywhere man has held that the supraconscious, numinous reality could be contacted personally, facilitated by intermediaries in sociocultural empathy.
Percept: Suprasensory contact facilitated by intermediaries.

Scholium 18: Religious behavioral patterns, institutions, and literature exhibit man's responsibility to manifestations of supraconscious forces.
Percept: Religious objective expression.

Scholium 19: All the leading religions emphasize man's responsibility to behave with self-giving love to deity and to fellow-man.
Percept: Self-less service as love.

Religious Life

Scholium 20: Religion gives psychic stability through cosmic orientation and balanced perspectives to living.

Percept: Religion as psychic vector.

Scholium 21: Men everywhere report similar transformations of their lives by the pursuit of various religions and other self-transcending concerns.
Percept: Conversion universal.

Scholium 22: Religious experience is described as being similar basically in all the religions, embracing mystic unity between oneself and reality and spiritual quest in private and communal ritual, and usually involving societal relatedness.
Percept: Universality of religious psychology.

Religion as Knowledge

Scholium 23: Existential spiritual experience brings dependable suprasensory knowledge.
Percept: Religious knowledge dependable.

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Part II Constructs

INTRODUCTION

PART I of this essay dealt with experience as such. Man's objective and subjective reactions gave information. But man has wished to use the vast congeries of phenomenonological events to equip him to rise superior to the limitations of his setting. This sort of direct experiential knowledge has not been found to translate itself ready-made into vision and understanding. What mastery he can acquire over the conditions of his existence must be worked out by his own efforts. Such understanding brings wisdom. It rises as *constructs* of man's mind from his pondering on the *percepts* (observations) on the events that he has encountered.

These constituted ground for "superior knowledge," described by Polanyi as "all that is coherently believed to be right and excellent by men within their culture."[1] Hypotheses (as enlightened speculation) for seeking to understand establish new levels of wisdom. These hypotheses then become the ground of still broader and "higher" levels of meaning. Such formulations of ideas are as necessary in religion as in science. Both express the summation of experience into working formulae. In religion, they are called creeds or doctrines; in science, hypotheses or laws. In Part II, we shall study the postulates emerging from the events of Part I.

When one's own personal experiences have been substantiated as beliefs effective in living experience, this collective body of knowledge carries such a high *probability* as to make it trustworthy. This confirmed experiential testimony then constitutes a norm against which new testimony is checked. These postulates are our enlightened guesses as to the relation that they manifest to one another by virtue of their being aspects of a larger whole, a *universe*.

CHAPTER XI. CONCEPTUALIZATION

BASIS

THE confidence that we have in the daily routine of eating, working, building bridges, and flying attest the ability of the mind to conceptualize dependably the underlying principles of nature. The knower, the knowing process, and the object correlate into a coherent *Gestalt*—a unity of cognition.[2] Thereby, man and nature become integrated into a whole through correspondence and participation.

The success that has followed this in acquiring increasing knowledge and understanding of nature warrants our applying it to other areas of experience. Religion is such an area.

POSTULATION OF CONSTRUCTS

The endeavor to "make sense" out of his heterogeneous experiences leads man to recognize some degree of relationship between them. The guiding relations between these various events and their meanings as related to the whole of experience are called "rules of correspondence." These are metaphysical principles that correlate explanations with immediate experience. They are represented by the tie-lines between percepts and constructs illustrated in FIGURE 1, p. 5. The rules that connect percepts and constructs directly are represented by double tie-lines.

Constructs can in turn serve as bases from which more far-reaching generalizations can be postulated. As we proceed from publicly known events to constructs (ideas) about these events, we pass on to areas of decreasing objectivity but ever-widening generalization. In this orderly manner, we observe nature to be a patterned, harmonious whole which functions in a predictable manner. This is the methodology of science.

In many circumstances, a given percept may give rise to several explanatory constructs; vice versa, a given construct may be based directly on several percepts. This engenders cross connections among them all, producing a vast network of inter-related constructs, analogous to the interlocking struts on a bridge. If any one percept or construct or even several should later be found to be incorrect, the new information would not invalidate the dependability (stability) of the structure itself.

Such a network gives us what Conant calls a "good conceptual scheme."[3] These are the heart of science and make it into the world-wide discipline that commands man's respect. To make religion intelligible for our times, Phenix outlines the procedure for uniting religion with reason:[4]

1. A religious view must grow out of human experience.
2. Only varieties of universal human experience can interest every human being.
3. Only those universal experiences of central concern are involved in every area of man's life.
4. Concepts so developed must be universally communicable to and understood by others.
5. Such a religion must illuminate the historic religions of mankind.
6. Such a religion must be potent for extension into other experiences.

RELIGIOUS BELIEF AS A CONCEPTUAL SCHEME

Since man's behavior in any area is directed by what he believes to be the truth of the situation, his conceptions of reality must be expressed in terms of what he knows at first hand. Hence, some degree of anthropomorphism is inevitable—and necessary. His rationality has screened all phenomena so that a high degree of selectivity limits the scope of the basic percepts. His interpretations impart a more or less pre-determined pattern to the relationships that he seeks to find. It is as though he looked at nature through colored glasses. This anthropomorphic coloring transmutes his findings into more or less pre-determined patterns. The colored glasses influence his sensory perceptions.

So errors of perception will inevitably ensue. These can be minimized by collecting percepts from as wide and multifarious a scope as possible. Another error of a different kind creeps in, known as "affirming the consequent." For instance, we can set up the syllogism that if A is true, then B follows. But B might also follow C. So the fact of B leaves uncertainty as to whether it came from A or C.

Probably a greater error yet is the assumption that B is "true" in a final sense. But all that is known is only a high probability, and is being continually modified by accretions of new knowledge. So "truth" is changing as the cosmos is changing. Here is where the grand conceptual scheme contributes great stability. Its inter-locking, coherent pattern of relationships does not collapse when some parts are revised. There is permanence of pattern in change of detail.

The conceptual scheme that I am presenting is illustrated in DIAGRAM I. Starting with facts of publicly experienced events, located at the left base of the inverted "V," I postulate an hypothesis to give meaning to these events. We rise, so to speak, in our thinking to the apex of the pyramid. In order to ascertain whether the hypothesis is at all likely to be correct, we predict that certain results will ensue from its application. If such prediction eventuates in correctly predicted results, then we have secured confirmatory evidence of the correctness of the hypothesis.

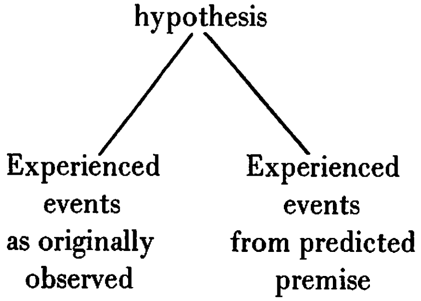
hypothesis
Experienced events as originally observed
Experienced events from predicted premise

DIAGRAM I

CHARACTER OF CONCEPTUAL SCHEME OF RELIGIOUS THOUGHT

James emphasizes that the concept of God must possess wider cosmic relations than just man's religious experience of union. This is necessary to justify the person's confidence. The religious world must depend on *facts* that are not just the materialistic world over again but must have a natural constitution that is uniquely different so that different events can be expected of it and different conduct required.[5] As a matter of fact, Jesus over and over urged men to ponder on what they experienced. (Matt. 9:2-8; 11, 2-6). If a doctrine is based on facts that man can publicly attest as true, he is disposed to consider the doctrine as true about other matters.[6] The hope of social order lies in the establishment of unity between the "human vital impulse" and rational thought through a balanced picture of nature and of man acceptable to all peoples.[7]

On the basis of these principles of induction and conceptualization, the following chapter will give examples of explanatory inference from nine disciplines, as areas of representative, living experience.

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CHAPTER XII. CONSTRUCTS FROM PERCEPTS

ASSEMBLY OF PERCEPT-CONSTRUCT RELATIONSHIPS

IN the following charts, the double, horizontal, shaded line represents the barrier of nature between objective facts as observed events and subjective thought as conceptualized constructs—ideas.

The percepts below the line represent areas of existential awareness. They are the observed facts of living experience.

Emerging out of this realm of experienced living, our thought enters the conceptual realm of speculative reason. The tie-lines trace the origins from which the given constructs have risen. Tie-lines above and horizontal to a given construct indicate the emergence of further generalizations beyond what has already been postulated. As thought keeps rising, the constructs become fewer in number but broader in scope. At last, we reach the top of the pyramid where only one construct occurs. This is the highest point at which human reason can ascend.

Every construct embraces the phenomena in the realm of percepts at the bottoms of the tie-lines.

Moving upward, we pass from factual events to pure thought. Moving downward, we pass from broad generalizations downward to narrower ideas, until at last we reach into the realm of facts—just naked, utterly irrational, objective natural phenomena.

For example, in the first diagram, the first percept of "Natural law" (observed as repetitive phenomena) gives rise to the concept that such must come from a universe that is patterned. This construct in turn presupposes that a force like "mind" imparts a directive (vectoral) influence. Both represent limited areas that come from their origin in the construct at the apex.

This construct-apex represents the outer reaches of man's thought. It lies on the fringe of man's comprehensibility. "X" is that aspect of Reality that lies beyond human conceptualization.

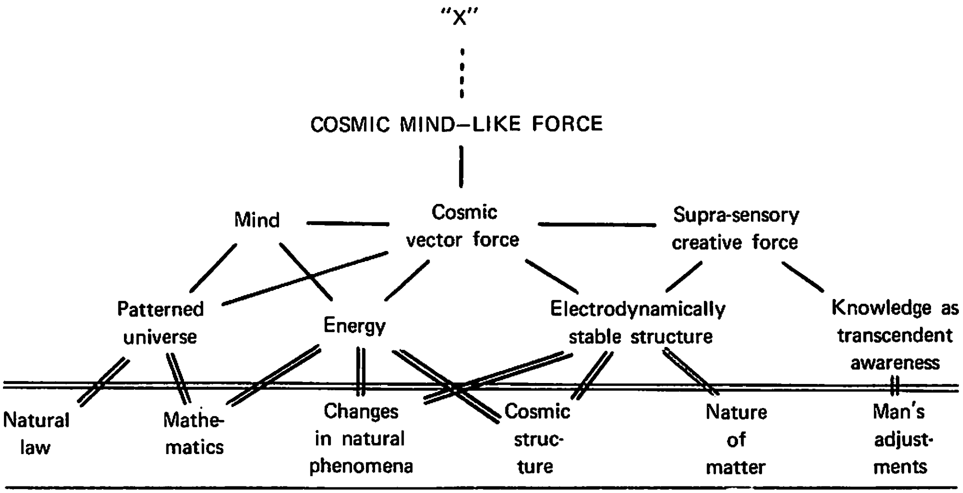


CHART I. Constructs-Percepts in Physical Science

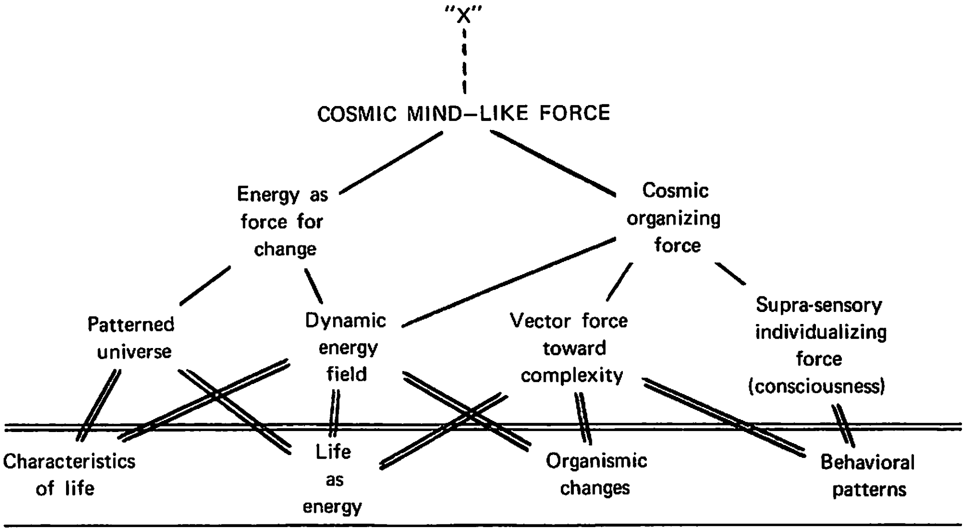


CHART II. Constructs-Percepts from Biological Science

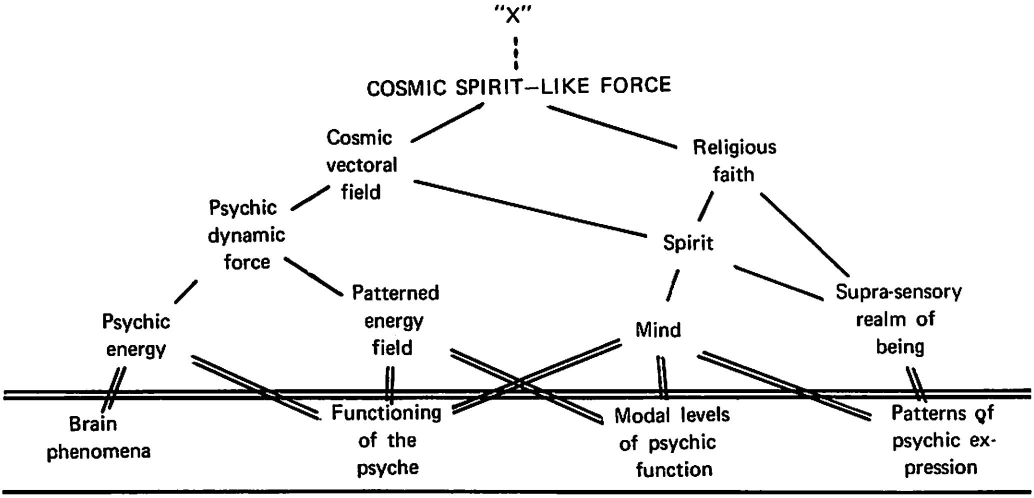


CHART III. Constructs-Percepts from Psychology

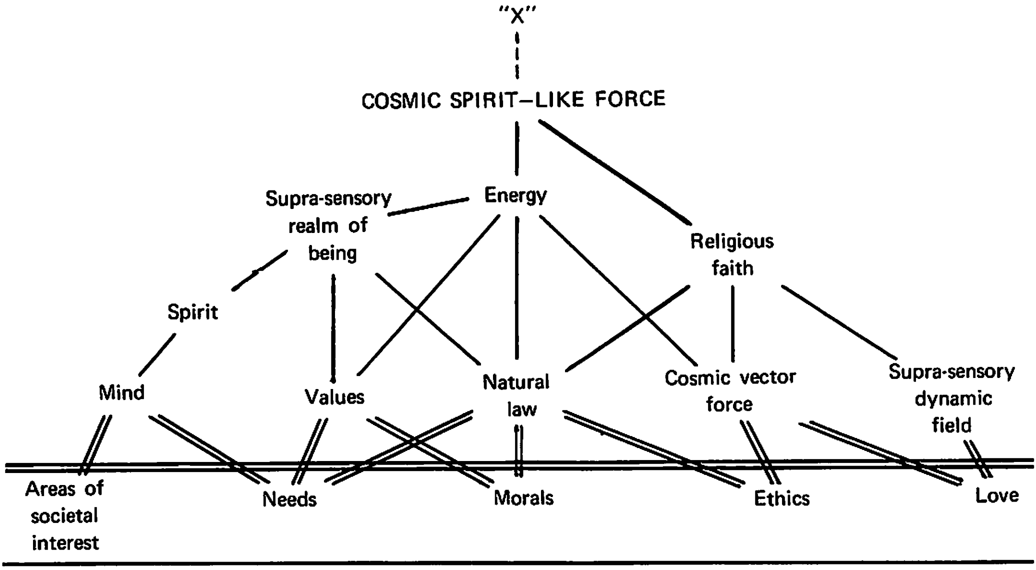


CHART IV. Constructs-Percepts from Sociology

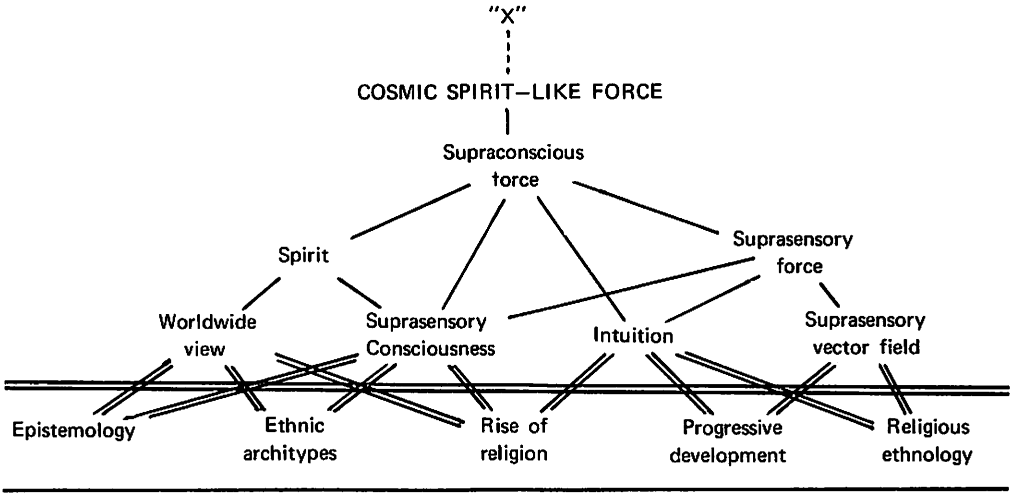


CHART V. Constructs-Percepts from Ethnology

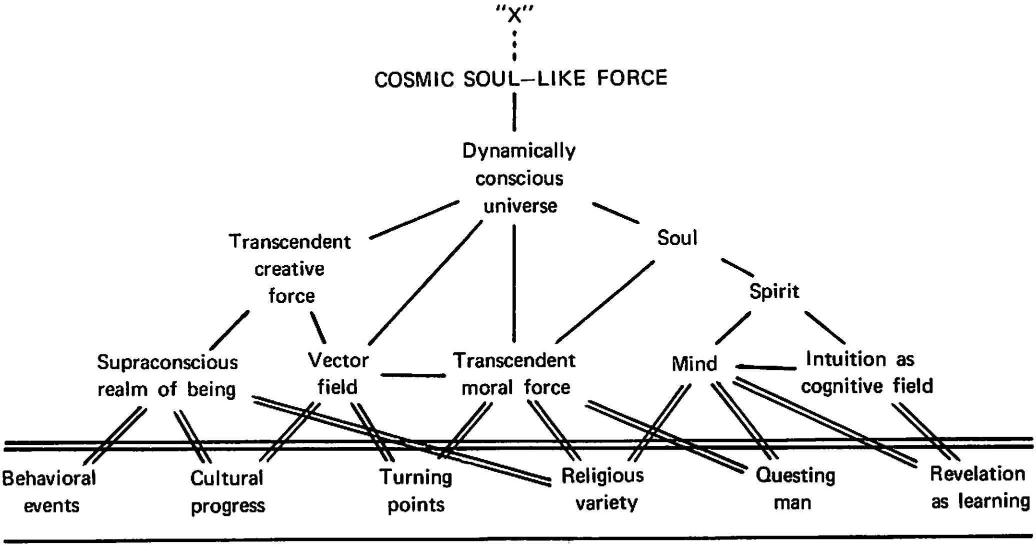


CHART VI. Constructs-Percepts from Historiography

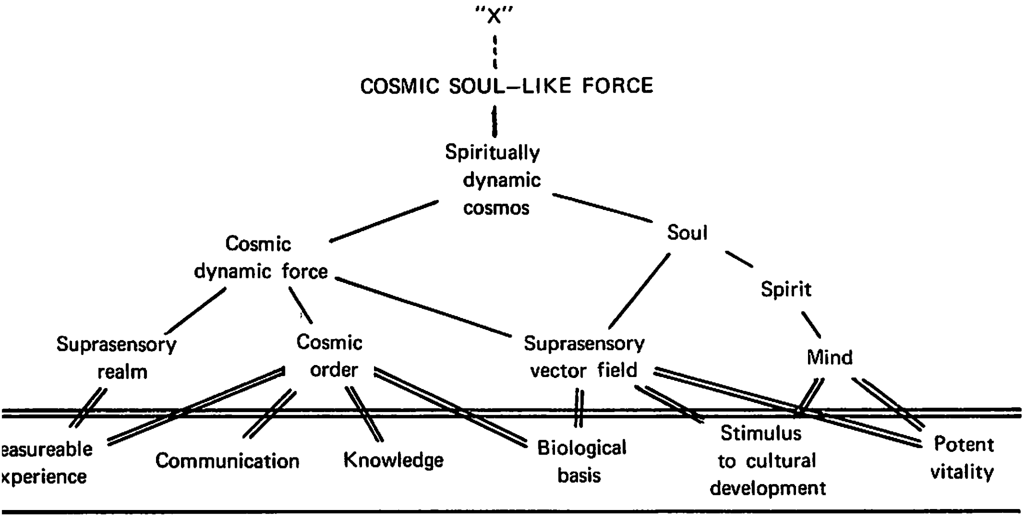


CHART VII. Constructs-Percepts from Aesthetics

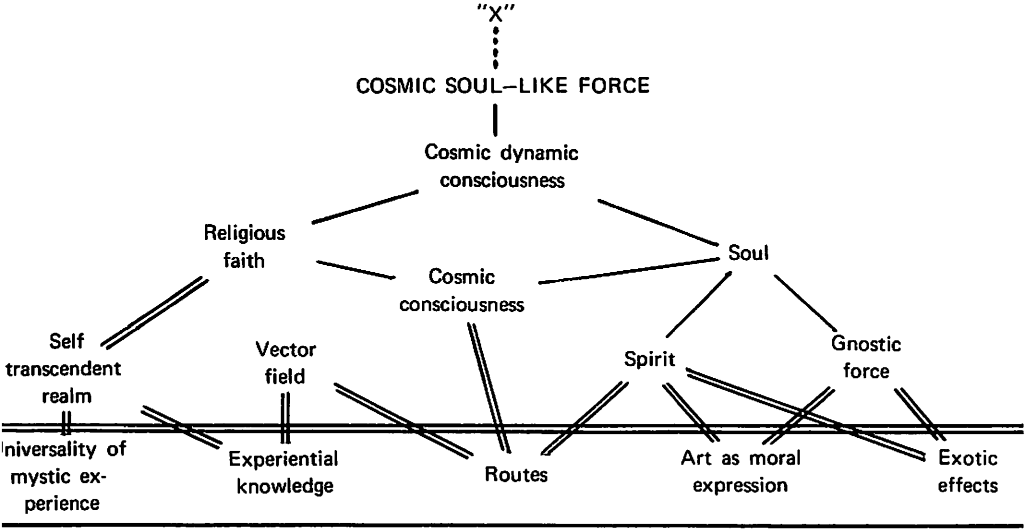


CHART VIII. Constructs-Percepts from Mysticism

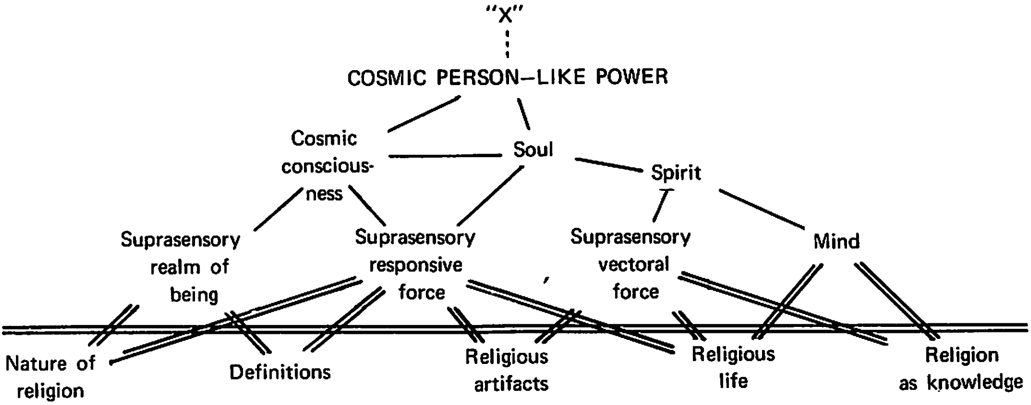


CHART IX. Constructs-Percepts from Religion

DISCUSSION

The foregoing presentations indicate that there is something more to living than what is sensorily apprehended. This "something" behaves like lines of force "as a gradient of potentiality." There are no indications of any break in the continuity of its influence, from cosmic inanimate behavior to anthropogenic emergence, seemingly guided dynamically along pathways analogous to those along which the potential energy of a system has decreased.

There seems to be an innate affinity for making contact with reality. Polanyi calls this a heuristic field.[1] The gradient of a discovery as the process of the search for truth, as this approaches reality, prompts the mind toward it. The lines of force in a heuristic field are provided by the clues from experience and the urge toward discovery.

The emergence of complexification increasingly in the manifestation of cosmic phenomena and the evolution of human personhood out of germ plasm give cosmic and somatic authenticity to the idea of a cosmic creative principle, an "ordering principle." This "cosmic mystery of being" reveals only that aspect of reality which corresponds to man's characteristics (otherwise it would be unrecognizable). In its fullness it lies far beyond all possibility of man's ability to describe it or even to experience any confrontation in an I-Thou relationship except within the relatively restricted limits of anthropomorphic figures of speech. In current religious expression, this aspect of reality is called "GOD."

The highest constructs emerging inductively from the percepts of the several disciplines are as follows:

1. Physical Science	COSMIC MIND-LIKE FORCE
2. Biology	COSMIC MIND-LIKE FORCE
3. Psychology	COSMIC SPIRIT-LIKE FORCE
4. Sociology	COSMIC SPIRIT-LIKE FORCE
5. Ethnology	COSMIC SPIRIT-LIKE FORCE
6. Historiography	COSMIC SOUL-LIKE FORCE
7. Aesthetics	COSMIC SOUL-LIKE FORCE
8. Mysticism	COSMIC SOUL-LIKE FORCE
9. Religion	COSMIC PERSON-LIKE POWER

The particular ideas leading to these ultimate constructs may vary as different persons conceptualize their experience. Affective factors would be the respective rubrics of the percepts and the degree of detail followed in building the inductive postulation. Whatever may be the itemization of the steps, any person, by using this approach, can correlate his experience in living with his ultimate concern as religious expression that consistently and rationally meets all his spiritual needs.

For convenience of analysis, the constructs from all the nine disciplines are collected and grouped into five categories, classified as follows:

1. Cosmic pattern of structure and process;
2. Suprasensory realm of being;
3. Cosmic force for synthesis;
4. Realm of cosmic consciousness; and
5. Transcendental being.

In Table V, I have collated the disciplines with their constructs grouped under the above five rubrics:

TABLE V. *Summary of Constructs*

P-plane	Cosmic Pattern of Structure & Process I	Suprasensory Realm of Being II	Spiritually Dynamic Cosmos III	Realm of Cosmic Consciousness IV	Transcendent Being V
1. Physical science	Patterned universe Energy Electrodynamically stable structure	Mind Knowledge as transcendent awareness	Suprasensory creative force Cosmic vector force	....	Cosmic Mind-like Force
2. Biology	Energy as force for change Patterned universe Dynamic energy field	Cosmic organizing force	Vector force toward complexity Suprasensory individualizing force	....	Cosmic Mind-like Force

3. Psychology	Cosmic vectoral field Psychic energy Patterned energy field	Mind Suprasensory realm of being	Psychic dynamic force	Religious faith Spirit	Cosmic Spirit-like Force
4. Sociology	Energy Natural law	Suprasensory realm of being Mind	Cosmic vector force Suprasensory dynamic field	Religious faith Spirit Values	Cosmic Spirit-like Force
5. Ethnology	Worldwide view	Supraconscious force Suprasensory force Suprasensory consciousness Intuition	Supraconscious vector field	Spirit	Cosmic Spirit-like Force
6. Historiography	Vector field Transcendent moral force	Supraconscious realm of being Mind Intuition as cognitive field	Transcendent creative force	Dynamically conscious universe Spirit Soul	Cosmic Soul-like Force
7. Aesthetics	Cosmic order Vector field	Suprasensory realm Mind	Spiritually dynamic cosmos Cosmic dynamic force	Spirit Soul	Cosmic Soul-like Force
8. Mysticism	Vector field	Self transcendent	Cosmic force	Cosmic dynamic con-	Cosmic Soul-like

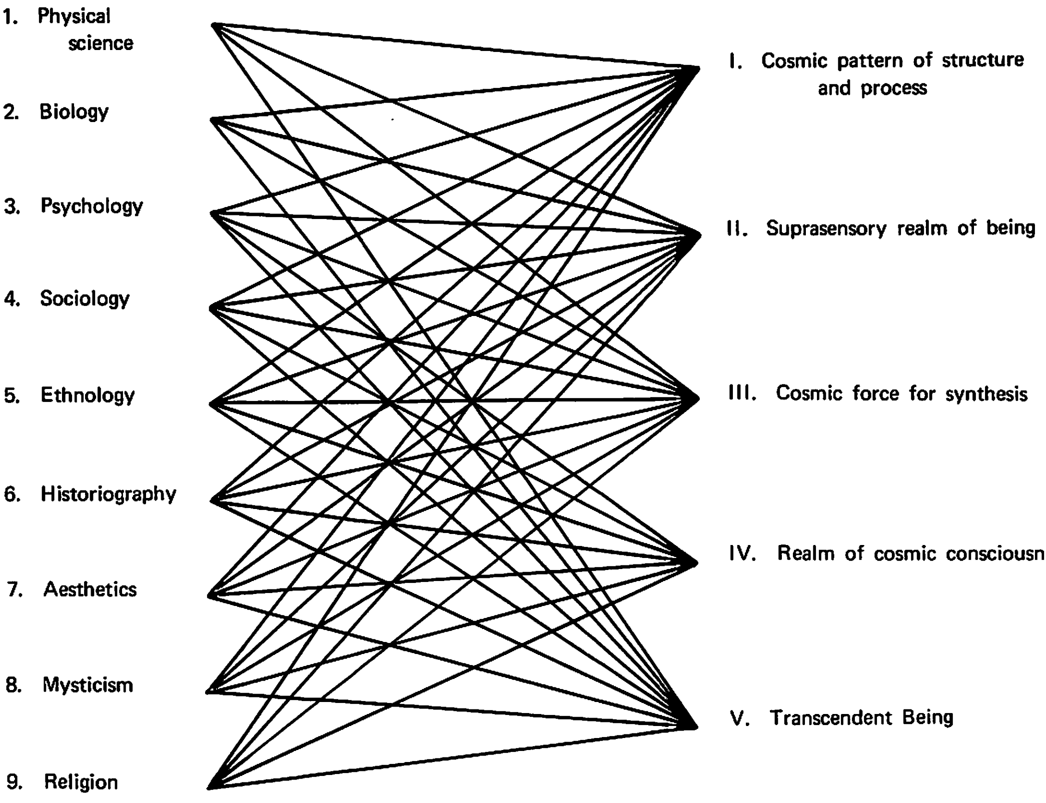
		realm		sciousness Religious faith Cosmic consciousness Spirit Soul	Force
9. Religion	Vectoral force	Mind Suprasensory realm of being	Suprasensory responsive force	Cosmic consciousness Soul Spirit	Cosmic Person-like Power

The concept as to the nature of ultimate reality in each instance emerges from only those postulates which are within the parameter of that particular discipline. Accordingly, the first construct under Transcendent Being, column V, emerging from physical science, is nothing higher than a personal, Mind-like Force. However, as we proceed from the top of the table to the bottom, the emotionally aesthetic and warm personal-like characteristics of our comprehension of Ultimate Reality become increasingly pronounced. This is the ground of everything personal, without necessarily being a person. This construct is what other philosophers call:

"The unconditioned," by Tillich[2]
"Supra-polar space," by Heim[3]
"Being, as the good source of all things," by Schilling[4]
"Omega Point," by Teilhard de Chardin[5]
"Invariant, Creative Logos," by Northrop[6]
"Cognitive Mind of the Universe," by Sabine[7]
"The Datum of Experience," by Alexander[8]
"The Essence of Personal Experience," by Phenix[9]
"The Creative Event," by Wieman[10]

Reference to Table V reveals that many constructs from the various disciplines appear in several of the categories. When tie-lines connect the construct-categories with the respective disciplines, an interlocking structure appears, as shown in Figure II.

FIGURE II. Percept-Construct Inter-relations



Each tie-line is a sort of rope entwining under each discipline and category the respective subsidiary percepts and constructs.

In brief, REALITY is conceptualized as a unique property or characteristic of the universe, designated as an Over-soul, and functioning as a form of energy which manifests itself in a structure and process whose pattern man's mind can recognize within its limits of comprehensibility. This plenum of Being and Becoming (Process) is analogous to a field (a stress in space) or realm in which COSMIC PERSON-LIKE POWER and man's soul (mind) can co-ordinate in harmonious interaction. Religion is the formal expression of this phenomenon and is thus seen to be ontologically grounded in the nature of things—Reality.

> *Scholium:* Collation of all the constructs emerging inductively from the whole spectrum of human experience leads to the concept that ultimate reality is apprehended by man as COSMIC, PERSON-LIKE POWER.

The concept of ultimate reality, as revealed in the foregoing discussion, explains the mystery "Looking out of Mother Nature's eyes," underlying and stimulating a pattern of behavior characterized as religious, embraced in a system of beliefs and practices, which will be the subject of the next chapter.

NOTES

1. Michael Polanyi, *Personal Knowledge* (Chicago: University of Chicago Press, 1958), pp. 398ff.
2. Paul Tillich, *Systematic Theology* (Chicago: University of Chicago Press, 1951), I, 211, 235.
3. Karl Heim, *Christian Faith and Christian Science* (New York: Harper & Bros., 1953), p. 163.
4. Harol E. Schilling, *Science and Religion* (New York: Charles Scribner's Sons, 1962), pp. 246ff.
5. Pierre Teilhard de Chardin, *The Phenomenon of Man*, tr. Bernard Wall (New York: Harper & Bros., 1959), pp. 267ff.
6. F. S. C. Northrop, *Man, Nature, and God* (New York: Simon & Schuster, 1962), p. 236.
7. Paul E. Sabine, *Atoms, Man, and God* (New York: Philosophical Library, 1953), p. 142.
8. Samuel Alexander, *Space, Time, and Deity* 2 vols. (London: The Macmillan Co., 1920), I, 343.
9. Philip H. Phenix, *Intelligible Religion* (New York: Harper & Bros., 1954), p. 109.
10. Henry N. Wieman, *The Source of Human Good* (Chicago: University of Chicago Press, 1946), Chap. III, pp. 70-78, 299-300.
11. C. L. Hunt, *Religious Ideology As a Means of Social Control.*

CHAPTER XIII. CREDO

MAN has found that his relationship to the ultimate ground of being must rest on a fairly clear system of beliefs and doctrines that express his mystic yearning for meaning. They give him orientation, a feeling of purposive direction whose pursuit entails peace of mind in cosmic harmony, spiritual sensitivity in aesthetic enjoyment, societal concern in human relationships, and creative urge in advancing sociocultural development.

A. *TRUTH*

Truth is conceived as a dynamic relationship between cosmic reality and existential man. It cannot possibly be a static, axiomatic formulation of experience. Man is continually changing as he develops in an evolving environment. So his conception of cosmic reality keeps changing. Truth is correspondence of hypothesis with discoverable facts.[1]

Man depends on the practice that has brought previous contacts with reality. Predictive power, comprehensiveness, and their conceptual economy (logical simplicity) take the place of immutable truth.[2] Thereby man discovers his own errors—for everyone has learned that much of his former belief is now changed—and uses his present outlook as the platform from which to adventure in deepening his understanding of the essence of being.

Analogous to the need of the physical body for food, so meditation and contemplation are "food for thought." The counterpart of physical exercise for the body is response of the mind (spirit) to the aesthetic, the mystic, and the novel, stimulating spiritual and mental sensitivity. This may come from association with thinkers in both the secular and religious worlds. At the same time, there must be the pursuit of personal adventure in the world of ideas, checking all these against one another into a coherent pattern that makes sense. Operationally, this entails our continually asking the question "How do you know?" or "Who said so;" or "Why?" The reward is the growing consciousness of increased spiritual power and insight. Truth is communion with reality for the man with cosmic consciousness.[3]

In everyday affairs, persons seem to think that religion is the one and only aspect of human activity that has the attention of the COSMIC PERSON-LIKE POWER. The coherence of all manifestations of reality into one harmonious whole warrants the supposition that it will reveal itself to man's quest by whatever road he pursues. This holds for the paths of science, mathematics, art, philosophy, religion. Reality seems to thrust itself at man when he approaches it in the spirit that makes receptivity possible (or, in the current vernacular, "tunes in" properly). The inquirer, in every field of creative advance, has been highly moral, has lost himself in devotion to the quest, has relaxed into a state of placid quietude and expectant fulfillment of desire, and then was suddenly flooded with an unannounced flash of insight—although often the inquirer has intimations of approaching insight.[5] This was often accompanied with emotional response that ranged from quiet joy to exuberant ecstasy—as in the jubilant exclamations of Kepler and Pascal.

Tenet of Belief A: Truth is existential man's comprehension of cosmic reality.

B. *DEITY*

The discovery, as discussed in preceding pages, of many experiences which have an inner relatedness of being welded into a consistent unity, has led to the idea that ultimate reality—the ground of being—is a single force or power applied to a set of definite and intelligible aspects of what man has perceived in living experiences. The personification of this construct is called "GOD," the ultimate in cosmic process.

The phrase "personal God" does not mean that God is a person in any anthropomorphic sense, but that he is the ground of everything personal as man comprehends "person." God is held to have community with everything that is and so participates in every life. Man's soul is qualitatively enough like this Being for communication in an "I-Thou" confrontation.

Many names of the deity express man's interpretations of this divine relationship. The name "God" symbolizes Western man's idea as being the cosmic energy within him.[6] Rieser describes him as "Guiding Field."[7] Ulich uses "Cosmic reverence."[8] God as the ground of being is entirely unconditioned but is being-self beyond finite and so is not *a* being.[9] God is the dynamic structure of being and so conceptualized in terms of this structure. This enables man to understand him as the living God.

Since we conceptualize God at the highest levels of man's thought, which is finite and limited, then we must conceive of God at higher levels or dimensions or "spaces."[10] There may be more than one such higher level, analogous to the multi-dimensional projections of geometry. That is the reason why we postulate an unknowable but necessary "X."

> *Tenet of Belief B:* GOD is the ground of being manifested over the whole range of phenomena from cosmic energy to the COSMIC PERSON-LIKE POWER—the transcendent power of creativity in process.

C. *SOUL AND SURVIVAL AFTER DEATH*

There has been a widespread belief that there is some form of life or self-consciousness after death of the body. (See page 156). The subject of this survival has been extensively investigated over many years and an impressive literature has been accumulated in more or less support of this idea. Empirically, the phenomena in this field are well attested but their interpretation is speculative, purporting to be direct communication from disembodied spirits of formerly living persons. Belief in the authenticity of such phenomena is increasing, enhanced by the experience of mysticism and the coherence of events observed in the field of parapsychology. In any event, practically all the leading religions, especially the theistic ones, hold firmly to the belief that there is a survival of individual consciousness after the death of the body, expressed as life in heaven or paradise—or incarnated in other forms of living beings here on earth. Such a belief, in one form or another, is basic to the idea of "salvation," a central theme in all religions.

> *Tenet of Belief C:* The soul continues in conscious identity after its separation from the physical body in death.

D. *SALVATION*

The mental distress that man feels from encountering the various vicissitudes of life underlies the rise of religions. These severally in their respective ways prescribe behavioral patterns that assuage the distress. The process is a saving of the individual from the despair of helplessness to a confidence in the effectiveness of religious behavior and thought to enable him to triumph over his despair. Most religions go on to promise after death of the body a greatly enhanced, blissful continuation of individual consciousness—or a never-ending torture.

All the prescribed paths lead to psychic wholeness—in whole or in part—while the votary is still living on earth. This power of deity seemingly pervading the whole universe exerts a continuous pressure as a field continuum, so to speak. It expresses man's interaction with Being as becoming more being. Enlightenment and spiritual power seem to break in on man when he exercises faith in the effectiveness of the process. All religions report that man finds a new inward dimension as an illumined mind, a changed "heart" (emotional center), and a transformed will. All this constitutes a "second birth." The paths to this state are essentially similar the world over, but the modes and details of tenets of belief vary in accordance with the sociocultural milieu.

> *Tenet of Belief D:* Salvation is man's transcendence in spirit from his world of aggressive self-assertion and spiritual tension to a new level of being where he participates in cosmic life through interaction with deity.

E. *PRAYER*

By reason of man's conception of deity as the COSMIC PERSON-LIKE POWER, man believes that inter-communication is possible. This is expressed in the universal practice of prayer and worship. This is usually verbal in prayer as objective expression, or in meditation and spiritual contemplation as subjective. These practices are held to effectuate a living relationship to deity to whom man can open his heart in an "I-Thou" communion. Prayer itself may be a request for guidance, for an inspirational vision, for physical and spiritual well-being in particulars, or even in physical succor from some distressful situation. Less direct contacts are expressed in song, dance, drama, architecture, sculpture, music, all revealing devotional aspiration to advance spiritual sensitivity toward a more intense communion with deity.

> *Tenet of Belief E:* The practices of prayer, meditation, and artistic expression are held to develop the spiritual life and provide direct communion with deity.

F. *SELF-FULFILLMENT*

Man is responsive to the upward thrust of the spirit within him to transcend his ego-centric earth-bound "space" (level of existential living) and participate in the greater unity and harmony of a higher level of being. He aspires to an orientation that satisfies the quest for a comprehensive-belief system that relates him to existence as a whole. His goals for living are channeled to those qualities of life which are imponderable but real in the experience of mankind, such as societal concern, justice, the brotherhood of man, truth-seeking, morality. This expresses his "forward intention" as the relating of the person meaningfully to the whole of being and continuing through life.

> *Tenet of Belief F:* Expression of a growth-need impels the person toward a belief-system that enhances the creative enlargement of his spiritual potential.

SUMMARY OF BELIEFS

Truth A: Truth is existential man's comprehension of cosmic reality.

Deity B: GOD is the ground of being manifested over the whole range of phenomena from cosmic energy to the COSMIC-PERSON-LIKE POWER—the transcendent power of creativity in process.

Soul and Survival of Death C: The soul continues in conscious identity after its separation from the physical body in death.

Salvation D: Salvation is man's transcendence in spirit from his world of aggressive self-assertion and spiritual tension to a new level of being where he participates in cosmic life through interaction with deity.

Self-fulfillment F: Expression of a growth-need impels the person toward a belief-system that enhances the creative enlargement of his spiritual potential.

NOTES

1. Susanne E. Langer, *Philosophy in a New Key* (Cambridge: Harvard University Press, 1951), p. 280.
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5. Polanyi, *op. cit.*, p. 104.
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7. Oliver L. Reiser, *The Integration of Human Knowledge* (Boston: Peter Sargent, 1958), pp. 373ff.
8. Ulich, *op. cit.*, pp. 121ff.
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10. Karl Heim, *Christian Faith and Natural Science* (New York: Harper & Bros., 1953),

passim.

1. Gordon W. Allport, *Becoming* (New Haven: Yale University Press, 1955), pp. 92, 95-98.

The question now arises as to whether the foregoing presentations can be validated as dependable knowledge. Validation would establish the constructs as bridgeheads on which constructs could probe deeper into the unknown and establish the degree of probability that we are warranted in accepting these constructs as likely to be true. Validation is the subject of the ensuing PART III.

PART III VALIDATION

INTRODUCTION

In our quest to discover meaning in the phenomena encountered existentially, we have discovered clues of many over-arching relationships (presented in PART II) which seem to point to an underlying reality as a comprehensive whole of integrated parts perceived as sensory perception. If our procedure has resulted indeed in the discovery of such a power, we could reasonably expect that this would be recognized by other persons. In fact, statements that have neither intrinsic evidence nor public valuation have no cognitive value.[1] Validation of an hypothesis means a procedure for deciding whether the idea is "true"—that is, as having a dependable, enlightening, and fruitful basis for further exploration.

But reality cannot be described directly. We cannot even know what it would mean to present "reality."[2] It can only be experienced. Figures of speech have to be used because making known what was formerly unknown can be done only by establishing some similarity with what is already known. Language built on sensory perception must be used to describe experience in a realm that is outside of sensory phenomena. So myths and symbols are used to express such ideas. In fact, every scientific or poetic expression proceeds by creating symbols.

Validation of a doctrine requires that it be self-consistent, harmonious with all other ideas, consistent with all other facts of experience, confirmed by reports of similar experiences by many reliable witnesses, and satisfactorily explicable of all experience.[3] Coherence is a criterion of truth.

To the objection that all religious experience is subjective and impossible of verification, the answer is that all experiences of every kind are recorded in the mind. Many of these originate outside the mind as objective stimuli and so exist independent of the mind. All validation is based on assumptions of the unity of the verifying self, the data within self-experience, the validity of reason, the trustworthiness of memory, the reality of an objective world. These are accepted as basic truths because they are beliefs that form a system that is consistent with itself and with all aspects of experience. The constructs under scrutiny were built up from public knowledge widely attested. Their validation comes in personal awareness, a matter of subjective consciousness.

This may be verifiable to the recipient person but is impressive to the public only as he expresses his ultimate concern by his actions. Such correspondence between subjective mental states and objective manifestations is attested by the procedures in our whole system of education, by the practice of medicine, by our court procedures in jurisprudence. The hallmarks of dependability of such knowledge are correspondence with facts, coherence in a *gestalt* pattern, and communicability to all men.[4] (See discussion of such knowledge on pages 123, 136, and 165). Religious faith is validated when it is correlated with all truths which may be known by scientific and philosophic disciplines, and proves itself to be a resource for coordinating them into a deeper and wider system of coherence.[5]

A comparison between validation of hypotheses of science with hypotheses (doctrines) of religion runs as follows:

Science	*Religion*
Insight into coherence between experimenter's hypothesis and his *experiments.*	Insight into coherence between religionist's beliefs and his *experience-system.*
All validation rests on postulates that cannot be proven but which are assumptions from *sensory data* (predominantly objective).	All validation rests on doctrines that cannot be proven but which are assumptions from *experience* (predominantly subjective).
Scientific hypothesis presupposes objective realities which can be comprehended by sensory observation of things and related by coherent thought	Religious belief (faith) presupposes objective realities which can be comprehended by experience of values[6] and related by coherent thought.
Public verification presupposes the existence of many investigators.	Public verification presupposes the existence of many votaries.

No validation, whether of science or of religion, is completely inclusive of all possibilities nor are they incontrovertible. Since every stage of insight leads to deeper insight, so any interpretation about anything requires reinterpretation as new knowledge unfolds.

The essence of validation is repetition of the original percepts as these are predicted to recur from a given construct. In religion, there is a two-fold basis of evidence: the trustworthiness of those who have testified in the past, and the existential awareness of aspects of the divine here in this life to anyone who qualifies. For example, the objective character of St. Augustine's experience is verified fundamentally by its repetition in the life of Pascal.[7] If the vast interlocking structure of our constructs is reasonably correct, we would be warranted in setting up predictions as to the kind of results that would ensue in behavior by applying deductive directives (like theorems) from a given construct.

CHAPTER XIV. CONSCIOUSNESS OF COSMIC PERSON-LIKE POWER

THE procedures in validating the faith of mankind are expressed here in terms of anthropomorphisms, because these speak in the area of man's ultimate concern, his everyday experience of living. Here man finds the kind of phenomena that brings relief. A need is assuaged when met in kind.

A. *PERSONAL AWARENESS OF DIVINE ENCOUNTER*

Theorem A: *A cosmic power that has the characteristics of benevolent creative personality will be expected to communicate with individual man, who hungers for such encounter and qualifies for such correspondence.*

Since ordinary benevolent civilized man seeks to ameliorate the distress of fellow men and to give himself in societal responsibility for the well-being of others, it would be expected that benevolent deity would react in kind by manifesting person-like forces in an *agape* of "I-Thou" expression.

Actually, this encounter has been and is now occurring. The very fact that religions have been flowering over the past millenia and underlies civilization attests its operational effectiveness. Deity-consciousness is encountered whenever man directs his attention Reality-ward in accordance with appropriate procedures developed experientially by the different religions for assuaging the distress arising in ultimate concern over problems in living.

The effect of the contact of man with divinity is as great in the world today as it ever was. Man individually and collectively reports God-consciousness revealed in devotional expression vocally in a flood of religious literature, and behaviorally in church expansion, missionary zeal, and various forms of social service. A spectacular development in our times is the ecumenical movement. Increasingly, the leading religions are finding that their

Allah, their Heavenly Father, and their Yahweh symbolize the same deity.

Currently, these revelations of reality (God) are taking place among contemporaries. Frank Laubach, E. Stanley Jones, Billy Graham, Suzuki (lately deceased) testify to a consciousness of reality that all persons with ultimate concern likewise feel possibly in more limited measure. Einstein seems to have experienced it: he is reported to have maintained that the mystical is the most beautiful and profound emotion that we can experience and is the sower of all true science and the center of religiousness.[8] A contemporary *litterateur* reports on this ecstatic experience from questionnaires sent to 60 persons plus 27 literary descriptions of such experiences from 22 religions, asserting spontaneity of feelings of unity, joy, salvation, knowledge, with loss of sense of time and worldliness, and with feeling of light, heat, enlargement, and peace.[9] Numerous disciplines lead to this experience of "cosmic consciousness."[10]

The experience is not self-hypnotic, as shown by the fact that, unlike secular hypnotism, it gives new knowledge, transforms the personality permanently, and enhances societal concern and responsibility. Empirically, it is a phenomenon of direct and immediate participation in cosmic being.

Such a contacting of deity with ensuing communion recreates the universe into one that is felt to be friendly.

Proposition A: Man universally attests today the consciousness of direct divine encounter.

B. *PERSONAL HARMONIZATION*

Theorem B: *When the mind concentrates on a reach for the infinite (symbolized as God), an ineffable feeling of peace of mind and religious harmony sweeps through the soul, imparting an exalted feeling of having contacted a cosmic ground of unity, coherence, and warmth of transcendent power.*

The distress of self-condemnation, diagnosed as self-fragmentation by the psychiatrists and as guilt by the theologians, is remedied by commitment in ultimate concern to deity. Conflict between what a person feels that he ought to do or to be, versus what he actually does or is in his everyday living, becomes remedied through a singleness of purpose and an energizing enhanced potency when he approaches deity in a complete commitment of his life to his religious ideal.

Specifically, he finds that his inmost self becomes integrated functionally into a healthy harmony. The former fragmented spirit becomes united where the three states of mind—cognition, emotion, and volition—become united. This is represented symbolically in such archetypes as the mandala, a symmetrical design that universally bespeaks unification of what had formerly been discordant elements of the spirit.

Devotion to God brings a harmonizing activation and effectiveness that is greater than other unifying principles. This is shown by such experiences as those reported by Parker and Dare.[10] They report that when groups of spiritually distressed persons were treated by (a) pure psychotherapy, (b) undirected prayer, and (c) prayer directed God-ward, all for spiritual healing, the last group were not only made spiritually whole but received an added motivation or empowerment to engage in relief service to fellow-men. The healing was not only permanent but was dynamically creative toward societal concern.

Harmonization of spirit enhances the creative urge to extend oneself in benevolence, altruism, and truth-seeking. All this entails a feeling of cosmic security, an at-oneness with reality, a response of the deep in man to the deep of cosmic consciousness. Man discovers a friendly universe.

Trueblood emphasizes that the primary datum of religion is the fact that millions of men and women throughout several thousand years, representing various races and nations, and involving all levels of education and cultural attainment, have reported an experience of God "as the spiritual companion of their souls."[11] Examples of current religious, devotional, and inspirational literature are found in the writings of Catherine Marshall,[12] Frank Lauback,[13] and Starr Daily.[14]

Proposition B: Assuagement of soul tension and abolition of feelings of guilt are obtained effectively through prayer or equivalent devotional exercise to God.

C. *PERSONAL SUPRACONSCIOUS VITALITY*

Theorem C: *When a person meets the requirements for contacting such a deity, he expects to receive a spiritual empowerment for the successful pursuit of his religious ideals.*

The contacting of the seeker with God entails a depth of soul-ease and peace of mind that steal over him in a warmth and spirit-satisfying joy. The effect is permanent in its elevation of the moral sense, increase in spiritual sensitivity, and inspiration for self-actualization. Attestation of the validity of the claimed "answers" to such prayer is manifest in the ensuing behavior.[15] "By their fruits ye shall know them."

Psychoanalysis verifies the character traits that this supraconscious experience emphasizes.[16] These are found in the testimony of dreams, myths, behavior, and psychic drive.

Prayer is the great medium by which the soul communicates with deity. As a spontaneous utterance of the soul's deep desire, its effect is maximized in proportion as it is expressed in loving, selfless communion like that between child and father. With no dressed-up formalities and vain repetitions but in the spirit of sincere devotion, a person can turn his immediate attention God-ward at any time, in any place, on any subject, and receive a stimulating feeling of intercommunication. The mere fact of praying expresses a faith that participates so integrally in the divine dimension of being that the prayer and its expected result are indistinguishable.

A similar relationship to deity can obtain in the ordinary forms of religious worship, both private and public. The sacraments, ritual, meditation, the recreating of a work of art by contemplation of it and re-living the artist's experience, exulting in a magnificent panorama of nature, in fact, any response of the aesthetic sense exercises the spirit's urge toward communion with cosmic mind.

The answer to prayer comes surely. Not every petition entails the kind of result that the pray-er might have expected. Sometimes a surprising opposite obtains. All prayer is successful that expresses worship; the desired thing is only incidental. By coming to God in this spirit of seeking truth rather than things, a pray-er finds that he obtains an enlightened outlook on any matter than he presents to God in sincere selfless prayer. Man feels a consciousness of the presence of deity that seems to be pressing truth into him, analogous to the light of the sun in pressing to flood a room with light through wide-open windows or even to seep in through cracks. God as truth seems to be thrusting himself at man, as if trying to reveal himself.

Proposition C: In prayer, Cosmic Consciousness and man intercommunicate, engendering spiritual vitality and enlightened empowerment.

D. *MEANINGFULNESS*

Theorem D: *Commitment to a God-centered life as per the foregoing conceptualization would be expected to entail intelligibility and meaning to life.*

This phenomenon of religion is comprehensible as an aspect of the aggressive penetrating pressure of Truth to reveal itself. The adjustment of will-to-act to the pattern of the Way, the noble Eight-fold Path, the Path of Illumination, the Five Pillars, the Path of Holiness—all expressions of God-centered commitment—bring an insight, a revelation, and an intuitional feeling of rightness that seem to be communication between the soul and the cosmic center of consciousness. It is as if each were participating in the "becoming" of the other. "When the Spirit of Truth comes, he will guide you into all the truth. . ."[17] This assurance comes to those whose commitment to a religious life brings this esoteric knowledge.

Here is where the person-like aspects of God cohere with the meaning and structure of the universe. Such a conceptualization imparts to moral law:

1. imperativeness—no escape from it;
2. necessitous application throughout all creation;
3. discovery to man his own corrupt values.

When these considerations are checked against historiography, religious metaphysics, ethics, the humanities, and natural science, there is found striking coherence to the whole system of man's relatedness to reality. His effort to think through his existential situation brings an enlightenment that is soul-satisfying the mentally stimulating. It all "makes sense." It leads to rational-emotive behavior in either the world of ideas or that of everyday living—or both together. This is the basis for Allport's assertion[18] that there are as many varieties of religious experience as there are religiously inclined, thinking persons: each individual interprets and practices his ideals in the light of existential conditions that differ for every one.

Particularly significant, such an outlook helps man to understand much of his everyday experience. To such questions as: "Why am I here?" and "Is there a goal for living?" and "Where am I going?", "Why, why, why. . .?," the phenomena elucidated herein show that experience indicates a cosmic pattern whose structure channels positive, synthetic forces into a coherent system that manifests the kind of creator behind the universe.

Truth therefore is seen to lie within each person's inmost self. His personal concept of deity sets the pattern of his understanding and interpretation of everything. By the putting of himself in direct conscious alignment with his religious ideal—his ultimate concern—he identifies his life with cosmic process and so participates in continuing creation, a never-ending pursuit.

Proposition D: The conception of reality as a Cosmic Person-like Power gives intelligibility and meaning to life together with a goal or purpose for living.

LIST OF PROPOSITIONS

Proposition A: Man universally attests today the consciousness of direct divine encounter.

Proposition B: Assuagement of soul tension and abolition of feelings of guilt are obtained effectively through prayer or equivalent devotional exercise to God.

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CHAPTER XV. PERSONAL EFFECTS OF DIVINE ENCOUNTER

A. *MORAL TRANSFORMATION*

Theorem A: *Man feels intuitively that his despair would be sympathetically understood and his guilt relieved when he earnestly sought divine help to transform his character.*

MAN universally has felt that within his inmost being there is a disharmonious element that is foreign to his normal self.[1] Certain behavior entails a distress that may eventuate in despair. Habits and societal conventions constrain a person often to do that which he does not inherently want to do. He finds himself doing what he actually hates, and does not do that which he feels that he would prefer to do. This condemnation for a certain category of behavior is the basis of a phenomenon called "conscience." It expresses a trait of mind to guide man's behavior. This directional influence is often quite different from one socio-cultural system to another. The early Greeks recognized in *hubris* (assertive pride) a chief cause for this undesirable trait. Generally, that which is comprised within the category of the undesirable is called "wrong," whereas the opposite is considered to be "right," all embraced within the conception of "morality."[2]

There is something about moral rectitude that seems to be indigenous to the human race. Everywhere man feels that the gods favor the man who is moral. A common biological humanity is shared beneath the sociocultural divergencies. Man symbolizes righteousness as light and wrong as darkness, and generally the universe as unfriendly. Man's endeavor to find surcease from his guilt and "body of sin" has followed a pattern that is universal: he changes his behavior by act of his will-power, aligns his ideals with moral motivation, and commits himself selflessly to the divine will. At this point the role of saviour enters. The Hindu avatar (divine incarnations), the Buddhist bodhisattva (enlightened humans), the Christian clergy, all seek to encourage men to press on without hesitation, since they themselves have found the Way. The spiritually-hungry seeker has confidence in the ability and willingness of deity to empower him to enter into a transformed life characterized by a righteous behavior, spiritual power, and aesthetic sensitivity. He experiences a creative vitality, an enlightened vision of cosmic unity, a feeling of friendly concern with all of life. This experience is called by various names: "new birth," "conversion," "illumination," "initiation." All embody degrees of ineffable mystical insight into the nature of cosmic reality. Character transformation is clearly felt by the seeker and observed by the public.

Akhilananda expresses this experience in this way:

> Just as any scientist belonging to any country, race, or religion can make required experiments, verify the scientific facts, and arrive at the same conclusions, and experiences provided he is thorough and exact; so any man belonging to any country, race, or religion can have the same type of supraconscious realizations provided he is thorough and exact in the methods required; and he can verify them himself.[3]

Proposition A: Guilt and despair are swept away in the spiritual transformation empowered by selfless rapprochement (spiritual union) with deity.

B. *ENLARGEMENT OF GROUP CONSCIOUSNESS*

Theorem B: *Since man's spiritual union with benevolent deity unites him with all other being, he would be expected to feel responsible for the welfare and self-actualization of fellow beings.*

This endowment of spiritual energy springing from union with benevolent reality is manifested by great concern for the well-being of fellow-men. It is expressed in love, self-denial in the interest of other persons, altruism, benevolence, charity, compassion. These traits in the religious ethic go farther than what is expressed in the strictly humanistic ethic.[4] In this latter, man's self-denial is a self-mutilation; it is a deliberate undoing of what he himself set up as the standard of value, his self-fulfillment by his own efforts. Here self-denial negates self-actualization. However, in the religious ethic, self-denial is a coherent expression of religious motivation. In the Christian ethic, it is a "stewardship of gifts," a lively and responsible concern for their effective use. The Christian feels a responsibility for other men's self-actualization.[5] This is picturesquely expressed by John Donne in the following lines:

> No man is an Iland, intire of it selfe; every man is a peece of the Continent, a part of the maine; if a Clod be washed away by the Sea, Europe is the lesse, as well as if a Promontorie were, as well as if a Mannor of thy friends or of thine own were; any man's death diminishes me, because I am involved in Mankinde; and therefore never send to know for whom the bell tolls; it tolls for thee. – *Devotions* xvii, 1924.

Man, religiously committed, feels himself to be a sort of field-center in the larger continuum of the God-field, participating in every other man's life.

This condition of God-consciousness engenders in man a great expansion of his societal consciousness in altruism as in taking an enlightened religious message to the under-privileged, providing means for advancing education and technical know-how, rehabilitating impoverished people, advancing political liberty and civic justice, and sharing his own well-being with the "have-nots." This spirit of religion is one of the most powerful factors, if not the greatest, in underlying successful democratic government.[6,7] Such spirit of helpfulness is illustrated in the following report about religious motivation, as exhibited in a Russian Communist prison:

> Rising above the squalor and even degeneracy of Muhlberg was the dedication of two groups of men, the clergy and the physicians. The Catholic priests and the Protestant ministers did far more than attend, under greatest difficulties, to their proper churchly duties. . .No job was too mean for them. To the humility of each job, whether among the filth of the latrines or the mud outdoors, these men brought the sure and tremendous dignity of their faith. . . .that armor was a sure knowledge of God. Without that rock-like faith, men and women entering Red slavery became no more than what the Communists say all men are, animals.[8]

All over the world, wherever religion has entered, one of the first emphases is on education and health, and always music. From a Schweitzer in Africa and a Stanley Jones in India to the humblest nurse in a mission station, the motivation is selfless devotion, often under great personal privation. Such extrovertive traits, spontaneously expressed, exemplify the religious summation:[9] ". . .and what does the Lord require of you but to do justice, and to love kindness, and to walk humbly with your God?"

Proposition B: Selfless devotion to the divine reality engenders a spiritual dynamic that lifts all men to advance in self-actualization and imposes concern for a fellow-man's welfare.

C. *CREATIVE LIVING*

Theorem C: *Since man's interaction with the deity contacts him with illimitable creative potency, it would be expected that man would be endued with a spiritual dynamic of developing perspective, creative thinking, and inspired expression into ever richer realms of Being.*

Growth in religious experience, like that in any field, elevates one's perspectives so that he sees relationships and meanings never appreciated before. This is revelation, a highly personal experience, an inductive, intuitive understanding that comes with the assurance of recognition—like a person's recognition of a friend—undefinable but indubitable. Marks of personal maturity are described by Allport[10] as widening interests, self objectification in cosmic perspective, and self-integration. Man finds that his interaction with the illimitable spring of creative potency in deity entails a richness of religious experience, the dynamic dominance of religious commitment to shape the pattern of living, a deepening of his moral insights, and a tentativeness to a doctrinal system as amenable to modification in the light of new experience. This comes as man remembers and matches new information.[11]

Dewey describes religious experience as a feeling of creative participation in, and a reverential awe for, the totality of the universe, felt as community with an encompassing whole, giving meaning as revealing values as goals.[12] Man feels a continual urge to increase the spiritual nature. This tendency is the *telos* that expresses the development of life into expanding aesthetic and spiritual sensitivity.[13] Man's growth in "being" increases the total Being and so adds to the over-all potency of Becoming.

Proposition C: Religious faith is seen as a dynamic power that acts on the soul as life acts on the body, in that both grow as revealed in the artifacts of civilization—the measure of man.

D. *AUTHENTICATION OF VALUES*

Theorem D: *If man's pursuit of the virtues of truth, beauty, and goodness show that these are the sole ground of his participation in Cosmic Conscious as Deity, then these virtues would receive divine authentication as aspects of cosmic reality.*

Man's pursuit of the disciplines of science and philosophy (as expressing truth), of those of the arts (as expressing beauty), and that of love (as expressing goodness) leads to his increasing depth of participation in creative living as "being" and "becoming." These traits—irreducible to simpler elements and nonderivable from more general traits—become norms by reason of their establishment as the paths of the satisfying human quest for self-fulfillment in cosmic Being and Becoming.

On this basis, meaning within the whole cosmic reality rises to its greatest height through the fusion of emotion with logical thinking—a "cognitive affective fusion."[14] The validation of these virtues as structured into the pattern of things is the fact that the persistent and consistent disciplined pursuit of these principles leads to union with cosmic reality. The manifestation of attainment of such intuitive insight is vouchsafed by the ensuing practical expression in a life of higher principles of ethics, unity of mind, spiritual sensitivity, societal concern, and centered meditation.[15,16]

Values that have no limit to their beneficial expression are: truth, beauty, and goodness. We are not cloyed with their excess.

> *Proposition D:* The avenues of spiritual expression that lead to contact with cosmic reality are the virtues of truth, beauty, and goodness, thereby authenticated as basic values.

LIST OF PROPOSITIONS

Proposition A: Guilt and despair are swept away in the spiritual transformation empowered by self-less rapprochement (spiritual union) with deity.

Proposition B: Selfless devotion to the divine reality engenders a spiritual dynamic that lifts all men to advance in self-actualization and imposes concern for a fellow-man's welfare.

Proposition C: Religious faith is seen as a dynamic power that acts on the soul as life acts on the body, in that both grow as revealed in the artifacts of civilization—the measure of man.

Proposition D: The avenues of spiritual expression that lead to contact with cosmic reality are the virtues of truth, beauty, and goodness, thereby authenticated as basic values.

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CHAPTER XVI. SOCIETAL EFFECTS OF DIVINE ENCOUNTER

A. *FREEDOM FOR SELF-ACTUALIZATION*

Theorem A: *If man's spirit actually is united with deity, then we can expect that his ever-deepening insight into the nature of reality would develop maximally when it can respond to "truth pressure" without coercive authoritarian restrictions.*

MAN'S experience in scientific and humanistic adventure has demonstrated that when he is coercively restricted to the pursuit of prescribed lines of thought and action, his development languishes. The spontaneity of creative action seems to need complete freedom to adventure in any direction, with no holds barred. The dampening, chilling effect of restrictions on complete freedom in thinking is observed today in educational institutions where certain areas of intellection are "off limits." For example, church-related educational institutions are not usually free from a kind of education that is slanted to favor the "official" doctrines—and accordingly suffer a lower status.

Civilization itself rose from the free expression of this spiritual spontaneity. As shown in historiography by Toynbee, in mysticism by Underhill, in cultural anthropology by Kroeber, in sociology by Sorokin, civilizations as sociocultural systems that have collapsed sprang into new life when men again expressed themselves without restriction. Transcendence of the conventional is possible only when the spirit has been free to rise.

The quality of this spirit is observed in two men who respectively sparked two of the greatest revolutions in history: Moses, who led a crowd of slaves out of bondage to the mightiest power on earth and built them into the nation of Israel, and Gandhi, whose non-violence campaign won the political independence of India. Both of these men were highly spiritually-minded.

The men who have dominated the thinking of the world for centuries have been such religious geniuses as Gautama, Confucius, Jesus of Nazareth, and Mohammed. This kind of cosmic spirit underlies civilization. When there is freedom to think, to feel, and to act, then cosmic truth-pressure is maximally creative.

> *Proposition A:* Man's spirit interacting with reality and expressing itself freely vitalizes society into more abundant living.

B. *SOCIOCULTURAL EXPRESSION*

> Theorem B: *Since a sociocultural system is the expression of the ideology of a people, those cultures that are motivated most basically by consciousness of the benevolent person-like power would be expected to exhibit most strongly the flowering of civilization in humanistic and scientific expression.*

A sociocultural system becomes determined by the people's belief in what is the true and right—the "noosphere."[1] The arts (expressive of spiritual values) have flourished in those civilizations which have based their ideologies on the fundamental virtues of truth, beauty, and goodness. The spectacular persistence and development of religion attests its unique character as expressive of forces emergent from deep cosmic consciousness. As shown in earlier pages, the great religions are man's oldest and most enduring institutions. The power of the Christian church to advance against terrible persecuting fanaticism and to rise above the antagonisms of race, government, ridicule, secularity, all show its vitality.[2,3]

The religious expression has provided the moral basis for the stability of the state, giving sanction to the holding of property, to liberty, and to life.[4] This basis of morals underlies the living law—the *lex naturalis*—of jurisprudence.[5]

From the religiously inspired American and French revolutions, the conviction spread world-wide (and is still spreading) that society could be improved by the exercise of the will of the people.[6] The ideology of the American people has been based on the aphorism of "freedom to serve God according to the dictates of one's conscience" and freedom of life in personal liberty. The ideology of the French people in their revolution was "liberty, fraternity, equality." Stable democracy fosters the rights of minority groups and extols impartial justice to every person. Together with the forces of the Enlightenment, it undergirds modern civilization.[7] Freedom seems to be the goal of history.[8]

The prominence of the religious motif in art, the rise of civilization from a religious ground, and the rationale of science as having developed from medieval metaphysics (Whitehead), all seem to reveal the flow of creative energy from the cosmic spiritual center to stimulate man to transcend the influences that would ordinarily restrict his attention to earth-bound concerns. Truth-pressure seems to reveal itself wherever it can find a responsive interest.

Proposition B: Governments are increasingly stable and societally constructive as they foster ideologies of liberty and morality within the frame of cosmic consciousness.

C. *NATIONAL VITALITY*

Theorem C: *Those nations that base their ideologies on divine transcendence would be expected to exhibit a stronger national vitality and creative vigor than those that deny or neglect this power.*

The effectiveness of the religious motif as a constructive force in the national welfare is spectacularly revealed in the history of the Jewish people. Starting as a horde of fleeing slaves from Egypt, they set up a theocracy that has maintained racial and cultural identity for about thirty-five hundred years. They inspired the emergence of the two leading world religions, Christianity and Islam, whose votaries number about half the world's population—although the land of Israel was a narrow strip wedged between great warring empires.

As shown earlier, the American political revolution was sparked by a clergyman and was led by those who trusted in transcendent power. On the other hand, the French political revolution, although sparked by religionists, was led by avowed atheists. The one still declares "In God we trust;" the other, as dominantly secular, exhibits its materialistic and earth-bound interests. World War II was precipitated by three nations which were predominantly atheistic and materialistic: Hitlerian Germany, Mussolini's Italy, and Japan. This was followed by Russia's bloody revolution and societal strife.

The State of Utah has had a brilliant social and economic record as compared with that of her sister State of Nevada which, though comparable in natural resources and in ethnic composition of its settlers, has not. The dynamic of the people of Utah came from the Mormon Church, whereas that of Nevada was a mind for the speculation mining and, more recently, divorce and legalized gambling.

At municipal levels, the town of Ocean Grove, N. J., surrounded by secularity, shows crime, drunkenness, juvenile delinquency, and kindred evils to be almost nonexistent (except as brought in). This record is in sharp contrast to that of adjoining Asbury Park. Both were founded by the same religious organization. Ocean Grove followed a municipal pattern that was based on a religious motif; Asbury Park followed the secular emphasis of the average American seaside resort.

> *Proposition C:* A community that practices a transcendent ideology seems to fare better in the enduring values than one that is self-centered, grossly earth-bound, and blatantly secular.

LIST OF PROPOSITIONS

Proposition A: Man's spirit interacting with reality and expressing itself freely vitalizes society into more abundant living.

Proposition B: Governments are increasingly stable and societally constructive as they foster ideologies of liberty and morality within the frame of cosmic consciousness.

Proposition C: A community that practices a transcendent ideology seems to fare better in the enduring values than one that is self-centered, grossly earth-bound, and blatantly secular.

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CHAPTER XVII. HEURISTIC VALUE

A. *NATURE OF HEURISTIC COMMITMENT*

THE heuristic value of an idea is its potency to lead to new ones. Such an idea is one that is held tentatively until it can be confirmed or until it helps us to discover a more valid belief. So faith is a working hypothesis.[1] Its service is to establish further contacts with reality by opening fruitful avenues of exploration.

Creative scholars know the experience of feeling a sort of drawing toward the new concept. One aspect is the well-known "ripeness of the times," whereby a certain discovery is announced from widely separated sources. This gives the idea the semblance of a "field," certainly a heuristic field. The thinker moves toward the fertile hypothesis under the guidance and stimulation of useful and suggestive clues and plausible rules of thought.[2]

Carrying this idea farther, the heuristic field can be visualized as having "lines of force," so to speak. They sort of channel thought toward the goal of a clear idea, inspite of uncertainties. This idea of field in biology differs from that of inanimate nature in that the field functions in response to an active volitional center. At the highest levels in nature, these fields are full personhood. They have risen to creative potency and illustrate "truth-pressure" as a cosmic force.

All accomplishment comes from taking risks in advance of certainties. As Allport puts it, faith engenders the energy that when directed to the immediate task enhances the probability of success. Thus, mature religious development may be fashioned in the workshop of doubt. But the clues with their interlocking, coherent support preponderate greatly over negative skepticism.

Proposition A: Constructs constitute conceptual levels of understanding which serve as starting points and stimuli for further exploration.

B. *RELIGIOUS FAITH AS HEURISTIC*

Since the Cosmic Person-like Power (GOD) cannot be sensed in any immediate physical way, man cannot *prove* any aspect of his being by the evidence of the senses. But man can conceptualize God from the clues of experience as shown earlier herein. Wherever man worships, he entertains a heuristic vision, thereby aligning religion with the great intellectual, experientially based systems such as mathematics, the fine arts, literature, and science.[3]

Like science, religious conviction depends on factual evidence. It cannot prove any of its beliefs—and neither can science. But both, when pursued with careful attention to the coherence, the wide range, and the reliability of experienced phenomena, can lead to conceptualizations that bring soulful satisfaction and intellectual insights to existential man. Heuristic impulse is a leap of hopeful belief that there is a connecting link between the ground experience and its meaning in the structure of reality.

Herein lies the essence of religion: its continuous quest.[4] As Polanyi expresses it, the Christian faith elaborates and renders effective the supernatural aspects of anterior experience (observed phenomena) in terms of its own inner experience (existential awareness). Assiduous practice of such heuristic pursuits as wide reading, meditation, practice of ritual and sacrament, prayer, worship—all foster faith and lead the searcher to experience a consciousness of cosmic reality. The death of religion comes with the repression of this hope in adventure.[5]

Proposition B: Religious faith expresses continuous quest for deeper insights into reality.

C. *SPIRITUAL ADVENTURE*

Einstein maintained: "I assert that the cosmic religious experience is the strongest and noblest driving force behind scientific research."[6] Here lies the opportunity for devising a sound, universally recognized basis for morality. Right conduct is that which enhances full fellowship among men; wrong conduct is that which is inimical. So the moral law is more than just a set of behavioral rules imposed arbitrarily and sanctioned only by authoritarial fiat. Since violation entails feelings of guilt, soul distress, and attendant physical impairment, here we see correlation between biology, psychology, sociology, and religion.

The discipline of economics formulates theories of values in marketing and commerce. Yet it is singularly devoid of moral components in its formulations and analyses. In the same vein, political science is supposed to instruct man in sound governmental principles, but there is no authentic moral base therefor. Similar deficiencies are seen in the social sciences, in secular education, in jurisprudence. Northrop attributes this confusion to the lack of any basic ground that roots all these artifacts of civilization into nature, recognizable and expressible cogently in terms of the physical sciences.[7,8]

Proposition C: Religious faith stimulates search for meaning and a firm factual base in other humanities.

D. *DIRECTIONAL PROGRESS**

The question is commonly asked: "Why are we here?" or "Where are we going?" Heuristically, it is fruitful to conceive of this whole situation as an aspect of cosmic force. The development of the universe gives the impression of cosmic purpose: the universe seems to be going somewhere. Three reasons support this idea.

Man is the vectoral goal of nature. We are what we are because we were made by the natural reactions of the stuff of the natural environment. Many biologists assert that organic evolution shows no particular direction or goal, as for example, the blind alley of the dinosaurs.[9] On the other hand, the absence of any *constant* uni-direction is no indication of the absence of a long-time trend. Short-lived divergencies (in the geological eons of time) from the main course confuse us no more than do the irregularities in the path of a flash of lightning obviate the "mustness" of the vectoral quality of the discharge from a high potential area to a low potential area. Similarly, the meandering of a river (e.g. the Mississippi) from its relatively elevated source down to the Gulf of Mexico is determinate down-hill as a whole. The irregularities of direction in both the lightning discharge and the river flow indicate merely local resistances encountered in the inexorableness of the onward current.

Fitting coherently into the pattern of nature, we see man as the inevitable result of the directionally purposive current of cosmic force manifested phylogenitically, materially, biologically psychologically, spiritually. Man is the only organism that can participate consciously to assist the natural vectors to guide the future course of evolution. Some other organisms have developed societally to a high degree and then stopped at a plateau millions of years old—and static. Outside of their colonies, the individuals are helpless. Man is the organism that is least bound by environment.

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*I wish to acknowledge helpful suggestions from my former student and colleague, Professor Wallace C. Dixon.

Love ontologically substantiated. From man's earliest emotive expressions, we observe that he intuited cosmic energy with which he established rapport, expressing this as love and symbolizing it as God. On this idea he formed societal institutions, namely, the great religions, which have outlasted all others.

When man advanced in experience and knowledge, he discovered experimentally that this same principle of love was a basic physiological ground for healthy growth and abundant life. He recognizes it as being patterned into the warp and woof of cosmic essence.

The First Conference of the Research Society for Creative Altruism[10] showed that love is overwhelmingly the greatest value of the virtues. The summary of the findings from phsyical science, biology, sociology, psychology, anthropology, philosophy, aesthetics, emphasizes "union through love."

Progressive change. Indubitably, the universe is undergoing constant change. The past merging into the present presages the future. By extrapolating the present vector direction and slope, we see the development of man nature's goal or end—its *telos.* Since man is increasingly independent of his environment, the question rises: how can we express this vector change in terms of human behavior? It would seem that man's participation in creative process would continue and develop what had already been done, namely, develop man farther along the lines indicated, emphasizing love. Since love is the giving of oneself to others, then these "others" become more. So the emergent expression of the march of the universe is to facilitate man's development. This means his self-actualization, expressing the "abundant life," the "Kingdom of Righteousness," man's development in spirituality and in full stature as a person.[11]

> *Proposition D:* Man as the product of cosmic vector forces is developing co-operatively toward a more abundant life, an enlarged stature in spirituality, and deeper insights into cosmic meaning.

LIST OF PROPOSITIONS

Proposition A: Constructs constitute conceptual levels of understanding which serve as starting points and stimuli for further exploration.

Proposition B: Religious faith expresses continuous quest for deeper insights into reality.

Proposition C: Religious faith stimulates search for meaning and a firm factual base in other humanities.

Proposition D: Man as the product of cosmic vector forces is developing co-operatively toward a more abundant life, an enlarged stature in spirituality, and deeper insights into cosmic meaning.

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EPILOGUE

"Is the universe friendly?" queried the eminent biologist Ernst Haeckel (who denied the immortality of the soul, the freedom of the will, and a personal God). Replied James H. Breasted, the distinguished Egyptologist, "Why did he want to know?" The query betrayed the concern of the inquirer. Slowly, painfully, over the centuries, man has had to deal with a hope that "beyond the blue" there is some kind of consciousness—or spirit—whose friendship can be won, at a price.

Sporadically, the light of a transcendent realm seemed to break through Nature's ceiling. Generations of mankind glimpsed an inexplicable cosmic "something" behind cosmic process. Then suddenly, there appeared in Palestine a man who, to many persons, seemed to speak to all mankind in an effort to arouse concern for the meaning of every aspect of life. Born in a stable, a carpenter by trade, a lover of mankind, he showed the way for every man, whether slave or kind, to encounter Reality and to grow to full stature as a person. Downtrodden, expendable men were shown how to become "sons of God." His teachings about Transcendent Reality were strikingly convincing. He authenticated his knowledge by the coherence of his life as in accordance with man's highest ideals, and by his selfless devotion to lifting men to abundance of life, even though he knew that this revelation would lead to his death. He sealed his teachings with his blood. History attests the timelessness of his message. He showed the way.

Today, the scientist, the artist, the philosopher, the religionist, all relive this existential quest of mankind for meaning. But none can pursue his respective path without suitable preparation, possible for everyone. In science, this means a rigorous academic training in mathematics and in experimental technique. For the religious individual, this involves an orientation of the self to intuitive intimations of cosmic responsibility in morals and ethics, in contradistinction to the individual's erstwhile self-centeredness in earthbound concerns. Explicitly, the self-centered person is more or less insulated, so to speak, from harmony with all the rest of nature. Such insulation cuts him off from—or greatly reduces—highly sensitive spiritual reaction to the field of cosmic "becoming." This is apprehended in the streaming forward of the whole cosmos into man's awareness of greater harmony, higher levels of spiritual sensitivity, and more lucid insights into the meaning of Truth, Beauty, and Goodness—which even secularly he values. Advance into such a realm necessitates a sort of "tuning in" that does not consist of turning dials. It requires the acknowledgment of one's dependence on Transcendent Being, the abandonment of the secular counter-current against the process of such "becoming," and the commitment of the self to a way of life that not only harmonizes with but creatively participates in the forward sweep of "being."

Injecting a personal note here, I have found that the organization of my thinking into a coherent, rational pattern, built upon my consciousness of living and of observation upon the phenomena of science and the "phenomenon of man," has given meaning to my life. I find myself at home in a predominantly friendly* universe, participating with a seemingly person-like, benevolent power in enhancing the "becoming" of my environment—physical, biological, societal nature. The path thereto lay, first, in recognizing my need for meaning and the goal of the existential adventure. Then came a reorientation of my interests whereby I committed myself to the unconditional quest for "unaffiliated truth" or "unconditioned meaning." This involved a change from ego-centeredness to complete devotion to the Object.** *The quest for certainty is replaced by the certainty of the quest.* I and the universe are increasingly harmonized "by the persistence of uncommitted inquiry," uncommitted in the sense that I have no cherished doctrines to defend arbitrarily in the face of unfolding insight and enlightment. My credo strives to comply with the four criteria (Feibleman) of all abstract structures:

Consistency, by not possessing contrary religious beliefs;

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*"Friendly" in the sense that man's whole milieu seems to be teleologically functioning toward increased conscious harmony and freedom for self-actualization.

**James K. Feibleman, *The Pious Scientist: Man, Nature, and God in Religion* (New York: Bookman Associates, 1958).

Completeness, by possessing all the religious beliefs that are phenomenologically veritable;
Correspondence, by finding sufficient empirical and/or rational evidence for every belief; and
Applicability, in human experience.

Such a religious faith rests on probabilities. It admits new knowledge, and finds this enjoyable, stimulating, mentally refreshing, and creatively inspiring. Revelation is found to be continuous. It gives zest and rewarding encouragement to the adventure into new vistas of meaningful insight and spiritual exaltation. Jesus Christ—who has towered above the ages and still does—is my norm, possessing all the virtues and insights of every other religious and spiritual genius, plus a great deal more. He opened the door for man to encounter reality at greater depths than has anyone before or after.

In such a regimen of religious living, every man is his own priest. He has a direct, spiritual communication with the cosmic spring, warm-hearted like the relation of the father to the repentent prodigal boy who is returning home. All men actually are already in direct encounter with this power. This is shown by the breakthrough of insight and inspiration in the search for truth in experiment or art. Such encounters are experienced ineffably when the search is motivated by love for the truth for truth's sake. Such revelation of the cosmic mind is not only available for the asking. It presses in on man as if solicitous of acceptance

"Oh God, thy sea is so great and my boat is so small."

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